WESTERN FARMER & GARDENER.

"THE PROFIT OF THE EARTH IS FOR ALL; THE KING HIMSELF IS SERVED BY THE FIELD."—*Eccles* 5-9.

VOL. III. INDIANAPOLIS, MAY, 1847. NO. 4.

TERMS: FIFTY CENTS A YEAR IN ADVANCE.

WESTERN FARMER & GARDENER.

HENRY WARD BEECHER---Editor.

JOHN D. DEFREES, *Printer and Publisher.*

Indianapolis, May, 1847.

Mr. BEECHER, the editor of this paper, is now on a visit to the Eastern States, and will not return short of six or eight weeks

The Farmer and Gardener will be made up, principally, of selections and communications, until his return.

COMMUNICATIONS.

EMERSON'S TREES AND SHRUBS OF MASSACHUSETTS. CONCLUDED.

The next great division of the Reporter, is that of

APETALOUS FLOWERS, NOT IN AMENTS.

American Elm,	*Ulmus americana.*
Slippery "	" *fulva.*
American Nettle Tree,	*Celtis occidentàlis.*
Hack-berry,	" *crássifolia.*
Tupelo Tree,	*Nyssa múltiflora.*
Sassafras,	*Sássafras officinale.*
Spice Bush,	*Benzoin odoríferum.*
Leather Wood,	*Dirca palustrís.*
Plymouth Crowberry,	*Oakèsia cónradi.*

Next come the MONOPETALOUS PLANTS.

White Ash,	*Fráxinus acuminate.*
Red "	" *pubescens.*
Black "	" *sambucifolia.*

Again, we must advance in favor of Richmond another species; a beautiful tree, which I have found on our rocky river banks.

Walnut-leaved Ash, *Fráxinus juglandifolia.*

We return to the author.

American Holly,	*Ilex opàca.*
Mountain "	Nemopanthus canadensis.
Black Alder,	*Prinos verticillàtus.*
" " (Single berry,)	" levigatus.
Ink Berry,	" glaber.
Button Bush,	*Cephalanthus occidentàlis.*
Partridge Berry,	Mitchella repens.
Twin Flower,	Linnea borialis.
Fever Root,	*Friósteum perfoliàtum.*
Hairy Honeysuckle,	*Lonicera hirsuta.*
Yellow "	" *parviflora.*
Fly "	" cilicàta.
Hairy Fly "	" cerùlia.
Bush "	Diervilla trifida.
Panicled Elder,	Sambucus flùbens.
Common "	" *canadénsis.*
Naked Viburnum,	Viburnum nùdum.
Sweet "	" *lentago.*
Arrow Wood,	" *dentatum.*
" " (maple-leaved)	" *acerifolium.*
High Cranberry,	Viburnum ópulus.
Hobble Bush,	" *lantanóides.*

As an offset to the three unscored Viburnums of Massachusetts, Richmond presents her

Black Haw,	*Viburnum prunifolium.*
Water Andomeda,	Andromeda polifolia.
Dwarf Cassandra,	Cassandra calyculàta.
Panicled Lyònia	Lyònia paniculàta.
Clustered Lenobia,	Lenòbia racemòsa.
Alder-leaved Clethra,	Clèthra alnifolia.
May Flower,	Epigèa repens.
Chequer Berry,	* *Gaulthèria procúmbens.*
Bear "	Arctostáphylus eva ursi.
Rose Bay,	Rhododéndron máximum.
Swamp Pink,	" *viscosum.*
Upright Honeysuckle,	" nudiflòrum.
Canada Rhodora,	Rhodòra canadensis.
Mountain Laurel,	Kalmia latifolia.
Narrow-leaved Laurel,	" angustifolia.
Glaucous "	" glauca.
Labrador Tea,	Lèdum latifolium.
Black Whortleberry,	Vaccinium resinosum.
Dangleberry,	" frondòsum.
Bush Whortleberry,	" dumòsum.
Deer Berry,	" staminum.
Swamp Whortle,	" corymbòsum.
Blue "	" virgàtum.
Low Blue Berry,	" pennsylvánicum
Cowberry,	" vitis idea.

Whortleberries are found in different parts of our State; but having had no opportunity of examining the plants, I cannot name the species. The *Gautiera procúmbens* I met with in the north half of the State.

Cranberry,	*Oxycócus macrocárpus.*
Mountain Berry,	Chiógenes hispidula.

The next series of plants have the

PETALS AND STAMENS GROWING FROM THE CALYX.
(Except in cornus.)

Alternate-leaved Cornel,	Córnus alterifolia.
Round-leaved "	" circinàta.
Red-stemmed "	" *stolonífera.*
Panicled "	" *panienlàta.*
Silky "	" sericea.
Flowering Dogwood,	" *florida.*
Bunch Berry,	" canadénsis.
Witch Hazle,	*Hamamèlis virginiàna.*
Prickly Gooseberry,	*Ribes cynósbati.*
Wild "	" hirtéllum.
Round-leaved Gooseberry,	" *rotundifolium.*
Swamp "	" lacústre.
Large-flowering Currant	" *flóridum.*
Mountain "	" prostràtum.

Of the *Round-leaved Gooseberry* the author says:

"No native gooseberry promises so much as this. The introduced species often refuses to flourish in our gardens, even with careful cultivation. It is not perfectly adapted to our soil and climate. But this native one is, and if the art of cultivation can make as great a difference in it as has been made in the wild European gooseberry, the fruit will be the finest of the kind in the world. The cultivated species, on its cold, northern, native mountains, is small, hard, hairy and acerb. Cultivation points at its large, beautiful, firm, sweet, delicious fruit, as the triumph of art. This change has been produced

* *I give the name according to the orthography of Emerson and almost all botanists; but Rafinesque and Torrey write it Gautiera, the physician's name being* GAUTIER, *and not Gaulthier.*

by long and careful culture. What may not be made, by similar efforts, of a fruit perfectly suited to our climate, which, in its natural state, is pronounced delicious!"

Prickly Pear,	Opúntia vulgàris.

The northern limit of this plant has been variously stated by different authors: Decandolle places it at 33°; others much further north. Emerson remarks: "it is said to be found at New Haven, Connecticut." I found it there in 1827, in large patches, on the summit of West Rock.

Nine Bark,	*Spirèa opulifòlia.*
Meadow Sweet,	" salicifolia
Steeple Bush,	" tomentòsa.
Flowering Raspberry,	Rubus odoràtus.
Red "	" *strigòsus*
High Blackberry,	" *villosus.*
" "	" frondòsus.
Low "	" canadènsis.
Thimble Berry,	" *occidentàlis.*
Bristly Blackberry,	" setosus.

This township presents besides those marked, the

Dew Berry,	*Rubus trivialis.*

There appear to be but three species of Rose indigenous to Massachusetts.

Early White Rose,	Rosa lùcida.
Swamp "	" *Carolìna.*
Shining "	" nitida.

Add to these, for this little district,

Twin Rose,	*Rosa gemèlla.*
Wild Rose,	" *parviflora.*
Sweet Briar,	" *rubiginosa.*

The Massachusetts Thorns are:

Cockspur Thorn,	*Cratègus crusgàlli.*
White "	" *coccinea.*
Pear-leaved Thorn,	*Crategus tomentòsa.*
Dotted-fruit Thorn,	" *punctata.*

A single farm in this vicinity, furnishes not only the foregoing thorns, but in addition the

Apple-leaved Thorn,	*Cratègus pyrifolia.*
Cordate Thorn	" *cordata.*

We proceed with the catalogue:

Crab Apple,	*Pyrus coronària.*
Mountain Ash,	" Americàna.
Choke Berry,	" arbutifolia.

In addition to the *coronaria*, we have the

Small-leaved Crab.	*Pyrus augustifolia.*
Shad Bush,	*Amelánchier Canadensis.*
Beach Plum,	Prunus maritima,
*Yellow Plum,	" *Americana.*
Northern Red Cherry,	Cérasus Pennsylvánica.
Sand "	" pùmila.
Black "	" *serótina.*
Choke "	" *Virginiana.*
Common Locust Tree,	*Robinia pseudacacia.*

The *Robinia* is not known to be indigenous to any of the North Eastern States; nor have I discovered it in this immediate section of our State; "it is common in all the Western States."

"As long ago as 1601 or 1635, for accounts differ, the locust tree was introduced into France from America by Jean Robin or his son Vespasian, in honor of one or the other of whom, it received from Linnæus the name of *Robinia*. Since that time, it has been much cultivated in that country and in England, for the beauty of its foliage and the fragrance of its flowers."

"The leaves are used, in some parts of Europe, either fresh or cured, as nourishment for horses; the seeds are found very nutritious to fowls. The leaves may be made a substitute for indigo in dyeing blue, and the flowers are used by the chinese for dyeing yellow."

"No tree promises better, as a cultivated forest tree, than this. Its very rapid growth, its numerous and valuable properties as timber, and the fact, that the sap-wood is converted into heart-wood earlier than in almost any other tree, are very strong recommendations. It is the experience of many persons in different parts of the State, that the locust grows on poor land better and more rapidly than any species of hard wood. On such land, however, large, sound timber of locust cannot be produced, and it would always be good economy to fell it within thirty or forty years, or, at least, not to allow it to grow, for timber, to a great age. The various kinds of pine are better adapted to the poorest soils. But in rich, sandy loam, locust trees of a moderate timber size may, probably, be produced with greater ease and in a shorter time than any trees possessing the same valuable properties.*

Emerson found but one native leguminous tree in Massachusetts, and that but rarely, viz:

Honey Locust,	*Gleditschia triacánthus.*

But around Richmond I have observed besides this,

Maryland Senna,	*Cassia Marilándica.*
Partridge Pea,	" *chamechrista.*
Judas' Tree,	*Cercis Canadensis.*
Coffee Tree,	*Gymnocladus Canadensis.*

PLANTS WITH MANY PETALS GROWING WITH THE STAMENS AROUND THE SEED-VESSELS ON A DISC.

Bladder Nut,	*Staphylèa trifòlia.*
Waxwork,	*Celástrus scándens.*
Prickly Buckeye,	*Æsculus glabra.*
Smooth Buckeye,	" *flava.*
Red Maple,	*A'cer rùbra,*
White Maple,	" *dasycarpum.*
Rock or Sugar Maple,	" *saccharinum.*
Striped Maple,	" *Pennsylvánicum.*
Mountain Maple,	" spicàtum.

Leaving this little district, we find in other parts of the State, more than the above:

Black Maple,	*Acer nìgrum.*
Box Elder,	*Negúndo aceroides.*

PLANTS WITH STAMENS AND PETALS GROWING ON THE RECEPTACLE.

The *Sumachs* of Massachusetts are:

Stag-horn Sumach,	Rhus typhìna.
Smooth "	" *glabra.*
Mountain "	" copallìna.
Poison "	" *venenata,*
Poison Ivy,	" *toxicodéndron.*
Fragrant Sumach,	" *aromática,*
Prickly Ash,	*Xanthóxylum Americanum.*
Basswood,	*Filia Americana*
Sun Rose,	Heliánthemum Canadense.
Large Pink-weed,	Lechèa major.
Thyme-leaved, Pink-weed,	" thymifolia.
Small "	" minor,
Downy Hudsonia,	Hudsonia tomentosa.
Heath-like "	" ericoides.
Barberry,	Berberis vulgaris.
Moonseed,	*Menispérmum Canadense.*

The following *Vines* are found in Massachusetts and in this vicinity:

Fox Grape,	*Vitis labrùsca.*
Summer Grape,	" *estivalis.*
Chicken Grape,	" *cordifolia.*
River Grape,	" *riparia.*
Virginia Creeper,	*Ampelopsis quinquefolia.*

I have not met with the Buckthorn here:

Common Buckthorn,	Rhamnus catharticus.
Alder-leaved Buckthorn,	" alnifolius; nor the
New Jersey Tea,	Ceanothus Americànus.
Small Magnolia,	Magnòlia glauca.

This is the only Magnolia Massachusetts claims. About eight years ago, there was cut down, three miles from town, the last, known,

Cucumber Tree,	*Magnolia acuminati.*

This act, of course, is greatly to be regretted, by every lover of forest scenery; but it cannot now be mended; and we turn as next in beauty to the

Tulip Tree,	*Liriodéndron tulipífera.*

The diameter of this tree is represented by the author as being in the Western States, sometimes five and six feet. I measured one in this vicinity, some years ago, which was six and a half feet. This tree was about 427 years old; and when cut down, it revealed a story of its early growth, which, I venture to say, will be found in no other records of antiquity. If the tree could speak English, it would interpret this story as follows: When I was about twenty years of age, there grew from my side about six feet from the

* *Not found in Massachusetts*

* *William Buckminster, Esq., states, in the N. E. Farmer, of July 16, 1830, that a sprout from a young stump of Yellow Locust grew sixteen and a half feet in one summer; and that it is not uncommon, on good land, to witness a growth of eight or ten feet.*

ground, at angle of perhaps 80°, a limb, three-fourths of an inch thick, which by some casualty was broken off; and this fact I have kept hidden from the eye of man for upwards of 400 years.

There are many such records, I have thought, buried in our forests, venerable as the ruins of Uxmal and hieroglyphic as the inscriptions of ancient Egypt, only waiting, like those, for a Stephens to discover, and a Champollion to read them.

We have now finished the catalogue of Trees and Shrubs of Massachusetts. Besides those marked as common to the country around Richmond and to Massachusetts, there are others not known to that State, which I will here enumerate as growing within this small circuit: Some of them were omitted in their proper places.

Dog's Bane,	*Apócynum androsemifolium.*
Indian Hemp,	" *canabínum.*
Pawpaw,	*Asímina triloba.*
Spindle Tree,	*Enónymous atrourpúreus.*
Burning Bush,	" *americanus.*
Obovate Enonymus,	" *obovatus* [Nutt. Gen.]
Johnswort,	*Hypéricum prolíficum.*
Wild Cherry,	*Cérasus mollis.*
Three-leaved Ptelea,	*Ptelea trifoliáta.*
River Elm,	*Ulmus nemoralis.*

I have hastily run over the foregoing list, and find, if rightly counted and quoted, that there are 211 woody plants in Massachusetts; and from an equally hasty examination of Torrey's Catalogue of New York plants, that State has 213 trees and shrubs.

If Indiana ever engages in a review of her own forests for the benefit of her citizens, besides the course pursued by Emerson, I would suggest the propriety of researches into the coloring properties of all the trees, shrubs and herbs as were likely to yield profitable results; and also an analysis of the ashes of the principal trees, to determine the proportion of potash &c. contained in them.

Let us now return to particular plants for the benefit of the author's observations on them; our quotations must, however, be much more limited than at first designed, on account of the space already occupied in the Farmer and Gardener, with this subject.

Bitternut Hickory. (C. amara.)

"From the bark or husks of some one of the hickories, probably this, the indians are said to have procured materials for coloring a permanet yellow."

The conjecture of the writer is perhaps true. A few years ago, in the course of some experiments on our native dyestuffs, I found the bark of *Carya amara* gathered in winter, produced on woolen goods, with an aluminous mordant, a bright and permanent yellow.

Buttonwood or Sycamore.

"This is a genus, the only one of the family, of lofty trees, with broad, spreading branches, and large leaves, forming a dense foliage. The young shoots, leaves, and stipules are thickly covered with fine down, which, as they expand, falls off, and floating in the atmosphere, is liable to be inhaled by persons in their vicinity. This produces a disagreeable cough, sometimes of considerable duration; and the circumstance forms a strong objection to planting these trees in the neighborhood of dwelling-houses."

"In most parts of New England, this tree is called buttonwood by the common people. Sycamore is a name often given to it; and it is sometimes called the plane tree. In England it is called the occidental plane to distinguish it from the European, which is called the oriental. There is no propriety in calling it sycamore, as that name indicates a totally different tree. Plane tree or platane is classical; but buttonwood is the good, english, descriptive name which belongs to it."

"The buttonwood is remarkable for the rapidity of its growth, especially when standing near water. Loudon mentions one which, standing near a pond, had, in twenty years, attained the height of eighty feet, with a trunk eight feet in circumference at three feet from the ground, and a head of the diameter of forty-eight feet. The buttonwood has been cultivated in England more than two hundred years, having been introduced about 1630. In 1809, it had become more common than the oriental plane, but in May of that year a severe frost is supposed to have killed the young shoots of many of the largest trees of this species throughout the island. In Scotland, where trees of both species were growing near each other, the oriental escaped, while the occidental were generally injured. Many died that year or in the summer of 1810, after making an ineffectual effort to push their leaves. According to the observation of Lang, only the large trees perished. But the severe winter of 1813-'14, destroyed many of those which had escaped in 1809.

"It seems very doubtful, from the account given of this malady, whether it is referred to its true cause. Lang says, 'Trees from twenty to twenty-five feet in height were little hurt; and smaller ones not at all.' This looks very little like the action of frost.

"The buttonwoods, throughout New England, were affected in a similar manner, but less severely, in the springs of 1842, '43, and '44. The shoots seemed to have been nipped as by a frost. The large trees were particularly affected, but by no means exclusively. For some weeks, in each of these springs, many of the trees seem to have been killed. In the course of the summers, most of them have pushed forth leaves on the sides of the branches, and have seemed partially recovering. The extremities of the branches, on almost all the buttonwoods, are dead, and many of the trees are now, in the fall of 1845, completely so.

"This malady has been attributed to various causes. By most persons, it is considered the effect of frost. Others ascribe it to the action of some insect or worm; and others believe it to be some unaccountable disease.

"It seems to me most probable that it is owing to the trees not maturing its wood during the previous summer, so that it is incapable of resisting the cold of winter. The presen season, of 1845, has been a remarkably warm one, and this year, if ever, the buttonwood must have had time to mature its wood. If the wood formed during the present season should not be affected by the cold of the spring of 1846, some confirmation will be given to this conjecture.

"Very little use in the arts is made of the wood of the plane tree. It is very perishable when exposed to the weather; it is said to warp considerably, and in every valuable property is thought to be surpassed by other kinds of timber equally abundant and accessible. For some purposes of ornament, however, it would seem to present claims to attention."

The Buttonwood is very apt to spring up on newly turned up ground, when the seeds have access to it; as shown by the abundance of young trees on some of the unfinished canal banks, and thickets bordering the equally unfinished Michigan Road.

Tupelo.

It will be difficult for the most persuasive writer to fascinate our sturdy farmers with charms of the gum tree, however true the picture may be. It is one of the most determined sprouters from the roots, when unmolested, either before or after it is cut down, that I have any recollection of.

"In Bristol County, and the other south-eastern counties, this is called the Snag Tree, and sometimes Horn Pine. In the western parts of the State, it is called Pepperidge; and often in every part, it is called Hornbeam, from the extreme toughness of the wood. It is nowhere called Gum Tree, by which name it is commonly known in the Middle and Southern States. The most suitable name, and one not appropriated to any other tree, is Tupelo, the name by which it and several other species of this genus were known to some tribes of the aborigines."

"As an ornamental tree the Tupelo deserves more attention than it has received. The brilliant color of the green of the leaves, and the rich scarlet and crimson to which they turn in autumn, at which season some of the trees are covered with the bright blue fruit, make it always a beautiful object."

NOTE.—This disposition to sprout both from the stump and roots, greatly enhances its value as a timber tree; as it thus renews itself, without the labor of successive plantings.

Round-leaved Gooseberry.

"No native gooseberry promises so much as this. The introduced species often refuses to flourish in our gardens, even with careful cultivation. It is not perfectly adapted to our soil and climate. But this native one is, and if the art of cultivation can make as great a difference in it as has been made in the wild European gooseberry, the fruit will be the finest of the kind in the world. The cultivated species, on

its cold, northern, native mountains, is small, hard, hairy and acerb. Cultivation points at its large, beautiful, firm, sweet, delicious fruit, as the triumph of art. This change has been produced by long and careful culture. What may not be made, by similar efforts, of a fruit perfectly suited to our climate, which, in its natural state, is pronounced delicious."

Common Locust Tree. (*Robinia.*)

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Moonseed. (*Menispernum.*)

The use, I may say the value, of this plant, appears not to be known very extensively. Emerson merely describes the plant. From the earliest settlement of the country, the root appears to have been used here as a pure bitter, both in domestic and more regular practice. The root is very easily gathered, being very long, and running just beneath the loose surface of the soil in fence corners, &c.; and is often brought to town by children by the armful, under the name of *Sarsaparilla*.

Tulip Tree.

"The tulip tree is readily propagated by seeds, which require a fine, soft, mold, and a cool and shady situation. If sown in autumn, they come up the succeeding spring, but if sown in spring, they often remain a year in the ground. Varieties are propagated by layers or by budding or grafting. This tree, like the magnolias, has few fibres on its roots, and is, therefore, not readily transplanted."

Now, for all the information and pleasure we have derived from Emerson, we will, (until we can make a better return) offer our eastern friends a picture of our

Pawpaw

as drawn by Timothy Flint. "This, in our view, is for beauty, the prince of wild fruit-bearing shrubs." * * * "A pawpaw shrub hanging full of fruits of a size and weight, so disproportioned to the stem, and from under long and rich-looking leaves of the same yellow with the ripened fruit, of an African luxuriance of growth, is to us one of the richest spectacles that we have ever contemplated in the array of woods."

I have just discovered that I have omitted two monocotyledenous plants of Massachusetts; one of them is sufficiently abundant here:

Green Briar, *Smilax rotundifolia.*
Herbaceous Smilax, " herbacea.

The *herbaceous* Smilax, ought hardly to have been admitted amongst *trees* and *shrubs*.

* *Wm. Buckminster, Esq., states, in the N. E. Farmer, of July* 16, 1830, *that a sprout from a young stump of Yellow Locust grew* 16½ *feet in one summer; and that it is not uncommon, on good land, to witness a growth of eight or ten feet.*

Insects on Trees.

I have not adverted to the numerous insects, represented by the author as injurious to forest trees; but in a cursory review of them I find many which I have collected here: as the *Aphides, Lucanus capreolis, Tomici, Prionus, Buprestides, Attacus Luna, Saperda*, &c.

If the Reporter has named the *Uroceridae*, it did not catch my attention; nor do I remember that he mentions the *Eriosoma*. It has been said by some entomological writers that the *Urocerus* does not pierce living trees: I know it to be otherwise. Some years ago, I caught a *Urocerus* on a thrifty elm to which she was immovably attached by her ovipositor, carefully cutting into the tree, I discovered the ovipositor had been inserted three-fourths to one inch deep, and *forked* at the extremity, in the wood. The author leaves us in doubt whether the *Eriosoma* infests the New England beech. Here it is not uncommon to find limbs nearest the ground covered to the length of one to three feet with this cottony insect; and immediately beneath, on the earth, invariably a dark purplish spot, in size proportioned to the number of insects above. These insects do not select the tenderest shoots of the beech; but are generally found on an apparently arid but vigorous branch. Unlike many other insects a slight jar of the limb, will for some time keep them in a lively commotion, wagging their bushy tails, but not relaxing their hold.

The Egeria I have obtained not only from the peach, but ten feet from the ground on a *plum* tree; the *E. tipuliformis* attacks our currant bushes. The *Curculionidæ* are common. I have various species of *Clytus*, (*C. flexuosus* most common,) the *Membracis bubalis;* we have *Vanessas, Artiipae*, the *Endamus Titynus*, various *Elaters*, and among them the singular and fierce-looking *E. occulatus* .A *Chrysoboshus* killed some willows which I had grown; and other *Buprestidans* I have collected from oak, hickory, and beech timber.

But we must here close this extended Review, by acknowledging the clumsy manner in which it has almost necessarily been perpetrated; and leaving the reader to arrange for himself, or begin to read where he pleases. Here are the materials; he may put them together according to his taste.

J. T. P.

WINTER OF 1846--7, IN WAYNE COUNTY, INDIANA.

The medium noon temperature of the first winter month was 40°, the coldest 24°, and the warmest 59°. There were five snows, and as many rains. On the 1st there was incessant rain all day; and nearly incessant during the 2d. On the 1st I saw flocks of wild pigeons in the woods. As late as the 7th, I observed tufts of *living* leaves on the extremities of the branches of very many young apple trees: privet (Ligustrum) yet green; and green leaves on many rose bushes. And still later, (on the 13th,) I noticed young shoots a foot long, (on some peach trees,) covered with living leaves. On the 19th, the thermometer stood at 16° from 7 to 9 o'clock A. M. 21st. To day, I plucked *green leaves* from one of my plum trees in an exposed situation. 23d. 16° at 7 o'clock A. M. 20th. Strong wind at night. 25th and 27th, windy. On 27th, no snow to be seen; bees abroad; grass green; roads very muddy. Pork $2.25 to $2.50. 29th. Very heavy thunder, vivid lightning, and much rain, and winds roaring. 31st. Our streams very high. Rain 8 in.

First Month.

Average noon temperature, 32°; highest, 58°; lowest, 10. The constant rains at the close of last month and the beginning of this, have dampened everything within doors in unoccupied rooms; and raised our streams about 2½ feet higher than in the summer of 1843, as already reported; and caused great destruction along all its tributaries; undermining one of the abutments of the national Bridge at Richmond, sweeping away mill-dams, which were considered torrent-proof; to say nothing of the unnumbered rails, the quantity of lumber, a wagon or two, and sundries, which came rushing down on the bosom of the current, which, a few hours before, it was thought, would hardly disturb them. This flood appears to have extended over the States north of the Ohio river, as far as the Lakes.

On the 7th, there was a sudden change at 7 o'clock A. M., in the temperature of the air, the mercury falling to 10°,

and afterward at 10 o'clock P. M., to 4° below zero; and snow fell to the depth of several inches. On the 8th, at 7 o'clock A. M., the greatest cold occurred: 6° below zero. On other mornings, the temperature raised from zero, to 16° and upward. Thunder and vivid lightning happened on several days; the 4th was very windy. There were two or three snows, which, with the rains, made a depth of more than 8 inches, being 16 inches in the two months!

Second Month.

Average noon temperature, 37°; highest, 54; lowest, 16°. The close of last month and the beginning of this brought us delightful weather. On the 2d it rained; and the thermometer being at 44° M., caused the roads to be muddy; but next day the ground was covered with snow, and the mercury at noon 16°. I never was more entertained with the results of a snow storm, than I was on the 4th, while riding along a worm-fence. The fierce and conflicting winds of the previous day had whirled the snow in every direction; drifting it in places to the depth of three feet; and shaping it into numerous fantastic forms, and many pleasing resemblances. There was the miniature mountain, with its Alpine peaks; here the overhanging cliffs and the inviting grot; then came the extended ridge, with smooth and gently sloping sides, on which lilliputian sheep might delight to gambol and to graze; and here and there, were curiously grotesk forms wrought in the pure white material, charming the eye with the delicacy of its outlines, the sharpness of its angles, its flowing curvatures, and its abrupt transitions. The average level of this snow was about five inches; the deepest which has fallen this winter. The lowest point the mercury reached this month was 8°. The 6th was a beautiful day; but the middle of the month, for about a week, was, without intermission, cloudy and rainy; and the roads became so near impassable that wood was sold for weeks, at three and even four dollars a cord: the *macadamized* portion of our national road presented a sorrowful picture of internal improvement; having ruts and mud-holes hub deep; and here and there a wagon stuck fast, seeming to say to the horses, "go on; but *I'm* determined to go no further." Rain nearly 3¾ inches. There were three snows this month.

Such has been our past winter. Last fall I picked up the following, and stuck it among the winter months of my almanac:

"Christmas day falls on a Friday this year, says the Mirror; and, if we are to have faith in an ancient ballad, a cold winter may be expected. The ballad runneth thus:

"'Yf Chrysmass day in Friday be,
The fyrste of winter hard shall be.
With froste and snow, and with flode,
But the last ende thereof be goode.'"

And now the reader has both the sign and the reality; and other winters reported in the first vol. of the Farmer and Gardener to compare with that just passed: he may serve the "sign" according to his conclusions, either nail it to the counter, or hang it up in a frame. We have certainly had "frost and snow" and also "flode;" the frost and snow probably accompanying the winter over the country where it was intended the saying should be applied; but the same cannot be said in favor of the "flode." And how "goode" the "last ende" was our wagoners may say. The language used by an eastern writer as descriptive of the last month as it showed itself in Philadelphia, is: "As a whole, no one could reasonably desire *a more unpleasant* month."

J. T. P.

P. S. I have just glanced over the last (3d,) No. of the Farmer and Gardener; and it has occurred to me to say, for the benefit of some readers, that a dash — before degrees, in weather-tables, always signifies *below zero*. See J. C. Helno's report of the weather, p. 44.

Much of our wheat has been injured by the winter; and some fields of it, or what remained of it, have been plowed up for other purposes.

PUMPKIN PIE.

Yes, but who wants to know anything about pumpkin pie at this time of the year? Why, if it is not the season for *making the pie*, the season is rapidly advancing for *planting the seed*, and my object in writing to you, is for the following objects. I have observed that in the fall when the pumpkins are cut open in order to boil them, that some appear of a lighter color than others, and that the light-colored ones have a very insipid taste, and will take more than a whole day to boil them soft, and that they have not a pleasant taste even then, whilst the darker colored ones taste very sweet, will boil quite soft in two or three hours, and are very sweet when done. Now these two sorts of pumpkins were sown, and grew in one lot of ground; are they of two distinct sorts? or does the same species of seed produce these two varieties in color and taste? Another thing I have observed as very curious; that people should be so stupid as to boil this tasteless sort, broiling and pestering themselves for a whole day or better, and have but a sorry, mean mess at last, when they could boil this rich, sweet kind in two and three hours, saving themselves a great deal of trouble and torment, and have a much more dainty dish when completed.

J. B.

COMPLAINT OF A NURSERYMAN.

My working Friend:—

I wish to sell my nursery. So far, the assistants that *I* have been able to get have been almost invariably ignorant and irresponsible—which is worse. I have therefore budded and grafted every tree myself; laid and inarched, and potted every plant; seen to the planting and digging every tree, and attended to or have done all other miscellaneous work which no one else would or could do—and I am tired.

To be able to *secure* "stocks," one must send to England or France—must send the *money*—must also send *there* for a competent foreman — must put money into every new thing—one in ten of which may prove valuable; but that one must be had when called for, the rest may be thrown away.

Then we have in the world speculators; persons who, being able to do a little business, do it in any way they can, and so do nurserymen present injury, and themselves future destruction. And there is a market space, where, on market days, any quantity of anything, mostly called "*shrubbery*," is exposed to the sun, and wind, and sale. But the things are there, and can be seen, and felt, and bought, as they often are; and they can die, as they always do: so the purchaser says, "it is of no use to plant *shrubbery*, it always dies." Now it often comes to pass, that a nurseryman's best wishers resort to this chance. One reason is that it *is* a chance; another, that they do not wish to bargain and "jew" a friend. This kind of chance-buying is very seductive, to some. We have among us a man who annually spends $10 to $50 with the poor French traders, for their blue dahlias, and black snow-ball, hoping that he may get some good thing in the end; but "the end is not yet."

One advertises year after year, that his nursery is so and so, and letters will reach him so and so; but persons meet him and say: "why I have been looking for you these ten days, but could not wait any longer, and so bought my orders in the market." Where in the ——— name did they look?—the world is too large.

But orders do come, some seasons more than one wishes. They usually contain all of the varieties which happen to have been named in the last number of (I speak it reverently,) of the indifferent journals to which they subscribe, (but do not pay: Eh? Exactly.—Ed.) Things most likely which are first mentioned in the month in which the order is sent, and of which the nurseryman, not taking that paper, has never heard. Now what is he to do? Does the man want so many trees of good known kinds? or will he die rather than have any other than those named? The nurseryman is very apt to come to the former conclusion, and he sometimes gets into trouble. A man in Lexington having already a pretty extensive collection of grapes, sends for some advertised in Louisville; he gets six grapes in return, none of which were ordered, and of which he has abundance. The nurseryman says in reply; "other nurserymen would have sent the same vines but would have *marked them* as you ordered! Honor — gentlemen south of Mason and Dixon's line—one should have *that*.

In such a small order, this liberty is not warranted; but in most cases a person will be disappointed if his money and order are returned, and so he looses a season. We live by faith and not by sight. Men visiting the nursery wish the

opinion of the nurseryman, and are afraid to trust it after they have it; and so dive out into the list of unknown, some-sometimes well and sometimes ill. And now you will ask, "can you do any business which is any better, or which has any fewer perplexities?" I know of none. What then can you do? Work, work for a dollar a day, and have trouble enough then. Yours, truly,

WEEPING WILLOW.

"COMMON THINGS."

Mr. Editor:—As you have requested your correspondents to write about ordinary and "common things," I suppose that a short chapter upon the subject of cut-worms, will come within this category, and be acceptable at this season of the year.

In the second volume of the Farmer and Gardener you recommend the "*husk ruffle*," to be applied to young cabbages when planting them out, to prevent injury from cut-worms. This may answer *tolerably* well, but I like my plan better. After transplanting my cabbages, I go to the carpenter's or cabinet maker's shop and get some rolls of thick, stiff, shavings; I then cut off enough to make a perfect circle and place it around the stalk, pressing the lower edge into the ground sufficiently to prevent its falling over and the worms from creeping under it. It seems to me that this will not be so apt to injure the growth of the plant as the "ruffle." The rings should have such a diameter as to leave a space, of three quarters or an inch in every direction from the stalk. The shavings should be more than an inch wide. I believe the common cheap wooden *pill-boxes*, with the bottoms broken out, would be better than shavings for the reason that they are stiffer, and not so liable to be displaced by wind and rain.

With a view of entirely destroying all the worms about my garden, in Nov. 1845, after the weather had become cold, I had it manured and spaded up and turned over, and it remained in this condition until last spring, when it was planted as usual; but instead of the worms having been killed, I thought they were, if any difference, rather more numerous than common. This was the result of my experiment. Have you made similar experiments, or are you aware that others have, with better success? R. H.

Brookville, April 1st, 1847.

MANAGEMENT OF LAND, &c.—TIME TO CUT WHEAT.

Mr. Editor:—You have from time to time requested your readers to write for the Farmer and Gardener. I have this evening summoned vanity enough to take up my pen.

You wish to know how we plow our fields; how we keep them in good heart, &c.

As there are a variety of soils in our country, I will give you an idea of mine. I found, in plowing the first time, a variety of soils in the same field; some a fine, mellow, black soil; some mulatto; some quite wet, and some a dead, heavy, ash-colored soil, which was very poor; I could not raise more than twenty bushels of corn to the aker; I sowed it in wheat with no better success. I then began trying to improve it by spreading on some thirty loads per aker of barn-yard manure and chips from the wood-yard; and when I gathered the next crop of corn, I found myself abundantly paid in getting some sixty bushels per aker. I then sowed it in wheat, and in the spring sowed clover upon it. I found my wheat crop as much improved as the corn. I then set apart a lot of clover, for early cutting and seed, and when scarce of pasture, would commence cutting and feeding hogs, cattle, sheep, and colts, by the 20th May; and by the time I would get over the first time, I could commence again, and generally cut over three times, except what I would need for seed—*that*, I only cut twice—saving the seed from the last cutting, and I find one aker managed in this way, will afford as much feed as three to pasture.

I will now tell how I manage my clover and corn-fields: I sow all my ground that is in small grain, flax, &c., in clover; sowing, say two bushels chaff-seed per aker. That which I wa t for corn next year, I would prefer breaking when the clover and weeds were in bloom—say the last of August or first of September. By that means I destroy the worms and the seed of the weeds, and give the ground a fine coat of manure, being careful not to plow so deep that the horses cannot pull the plow, and in the spring, cross-plow, and my word for it, you will have corn if you tend it well. Or if I need the pasture after harvest, I turn on, and have a good pasture until frost, and in the spring, let it lay as late as I can. Let the clover get knee high, if you can, then break deep and harrow before the ground dries. Let the harrow pass over, say, three times, going round the same way it was plowed; then furrow lightly, and plant, say, 3½ feet east and west, and four north and south, and use the harrow until the sod is so rotted that it will not drag. By late breaking you turn the worms under where they will stay and feed on the clover; and by deep plowing the moles travel deeper and do less injury; and if it is a wet season, there is a greater depth for the water to sink; if a dry season, the deeper the ground is mellowed the longer it will retain moisture—and I find the general condition of the ground is improved by deep plowing. Old clover or grass fields I would manage in a similar manner.

In my wet land, where I can, I finish a land in the lowest place every time I break the ground, thereby form a ditch or hollow, and extend it on to some drain or brook. I have not tried underdraining, but have seen some, and am much pleased with it. One of my neighbors has made one through a field on which the water has always stood during wet seasons, and has succeeded admirably. He completed some five rods per day. There has no water stood on the field since the ditch has been made.

I will now say a word on harvesting wheat. I have cut, in different stages, and find the dough state the best for the following reasons: The grain is bright, makes fairer flour and sweeter bread, and many times escapes the rust; you have some eight or ten days longer to harvest in, and the straw is much more nutritious; you can take in a much larger harvest with fewer hands, and avoid the general scramble for hands which is always the case when every body lets their wheat get ripe before harvesting it. I have made many blunders, but will not mention any of them now.

Yours, HOOSIER.

COTTAGE IN THE WOODS, March 26th 1847.

PLANTING POTATOES.

In vol. 3, page 10, a correspondent wants to know the best method for planting potatoes. In vol. 1, pages 52, 53, 54, he can find accounts of a variety of plans, though people in general have a method of their own, which no doubt they think is the best; and in vol. 2, page 236, is a fresh notion by C. W. Johnson, which is contrary to all the systems I have ever seen or heard of. It don't state whether anything was done as a substitute for the earthing up. From the information there imparted, it would appear that the sets were planted and left to grow just as it might happen. Now every one who has grown potatoes knows, if he knows anything, that with such cultivation, he would have but a very poor crop. Potatoes are a root which grow under the soil, and how are they to be planted so as to keep them properly covered over if they are not to be earthed up? besides the top surface will get set so hard together by the heavy rains in this country, like as if it was so much metal melted together; then there is the weeds, how are they to be kept down or smothered over? Then again, if potatoes are not well moulded up, many will he exposed to the air, and they become of a green color; whether they imbibe some kind of gas from the air, I don't know, but they become very hot in taste, and are not very wholesome to eat. I am told that potatoes don't grow well on the river bottom land, and as it appears by experiments made, that the principle fixed ingredients in potatoes, are soda and potash, has any one ever analysed that kind of soil, to ascertain why potatoes don't grow there, or in what else it is deficient which forms a constituent part of potatoes. By the bye, I have not seen any soil yet, in this neighborhood, calculated to grow good potatoes; the weather is either too hot, or the soil too light, or deficient in something belonging to potatoes, that in the place of raising some 200 to 400 bushels to the aker, I have not seen any one who can raise 100 bushels, and very seldom above fifty bushels. Another thing I have noticed: when people plant corn, or anything else of that kind, they always select the best of seed; if they want to raise good stock of any kind,

they look out for the healthiest and best of stock to produce it, but when they plant potatoes, they set any kind of trash for seed — that which is not fit to throw into a hog-pen is planted, remarking that they will bring good potatoes. Now, how can any one expect to raise a good crop from such worthless seed? The potato, which is setting all the chemists and philosophers in the world at defiance, who are trying to find out what extraordinary fatality has befallen it in the shape of the rot, is not going to be hummed over into a good crop by setting the worst sorts for seed. I expect they are like everything else; if any one wants to raise a fine crop of potatoes, he must plant some good seed for that purpose. I have never seen any thing of the potato rot, yet I am told it is about these diggins. How often does an epidemic disease attack both man and beast in whole districts, and no one can tell how it came. It has capered about for a time and gone away again, and so it may be with the potato rot. It probably may happen, if ever the cause is discovered, to be found to be some very simple affair, discovered accidentally, by some person, not expected to be over sharp, or learned in the arts and sciences. J. B.

SALT RISINGS OR EMPTINS.

Well, and what about salt risings? Why, like soap, some can make a rising, and some can never hit it; another can make one only in the summer; some can make it at any time of the year. Sometimes it is bewitched, or bedeveled, or their luck is changed; then a neighbor has to make one for another neighbor, to change the luck back again, or else they have to throw the stupid mixture into the fire, to burn the old hag out of the house. Some set a rising in the hot sun to get it up, others make it before day-light, and then it rises with the sun; some mix it with milk; in short it is a sort of happen and chance affair, and almost all salt rising manufacturers have their peculiar notions about it. The long and short of the matter is this: it is a *fermentation* caused by compounding *salt*, *flour*, and *water* together, and subjecting it to a certain *heat* for some time, and my object in writing, is to enquire, if any one has ever decomposed or analysed this compound, so as to know what is the cause of this fermentation, stating how much salt must be put to so much flour, and to such a quantity of water, stating which of the gases in the water, which of the acids in the muriate of soda unites with gluten, starch, or sugar of the flour, or whatever it may be, which causes this mixture to ferment, stating also what is the exact heat it requires to be kept at. The hand is generally dipped into the water to ascertain the heat, but this is a very uncertain thermometer to go by. A rising cannot be made with bad or poor flour; but why not? The old lady says it has no life in it. This is very indefinite, it must be the deficiency of some of the component parts of which flour is composed. Sometimes water will rise on the top of the mixture, and must be taken off. What causes this water to float thus? is there some acid, alkali, gas, salts, some vegetable or mineral held in solution in the water? or what causes this surplus liquid at the top? Some persons may remark, that salt risings can be made without this chemical exactness. Yes, so they can, but the difficulty which a vast quantity of people experience in making one, either by not having the flour *good*, or too much of it, or by not having the water *pure*, in consequence of its having some *mineral*, *vegetable*, or *animal matter* in it, or by not keeping the exact *caloric* to it, or putting too much, or too little of the *muriate of soda* in, necessary to form this useful and necessary compound which shows, that although it may appear a very simple affair, it requires a great deal of nicity in it, or the fermentation will not take place. It is a 'fixin' requisite and useful in every house, and every family, or very nearly so, uses it, or would make use of it, if they could get it, several times a week. We enquire about every other useful operation, and why not about salt risings? and although they are in such constant use, I have never met with any one who could describe how this operation was carried on. They can tell you to put so much flour, water, and salt together, keep it warm, and the job is done, and this is all they can tell you about it; but daily experience proves that there is a deal more to attend to before the rising will come up, and then, sometimes, and very often too, after anxious waiting near a whole day, you find out that the rising will not come up after all your trouble about the matter; exhausting all the patience Job was ever possessed of, to keep you in a good humor. J. B.

ON MAKING SOAP.

Sir:—You are very often requesting your correspondents to write about common, every-day matters; now here is one which every one has to do with, yet a very few perfectly understand, and it is only by a sort of guess-work, that any one who makes their own soap, accomplishes it. In vol. 1, page 81, there is an account how soap is made; but even that is deficient. It states how to ascertain whether the lye is strong enough or not, but it don't say how many pounds of fat or grease is to be put to so many gallons of lye of a perfect standard. If this was stated, some idea might be formed when soap would be expected to come; also how long the mixture ought to boil, before soap should come; and if it did not come, how we should ascertain whether there was too much fat in or not enough: there is no doubt, a just quantity of each is to be added together; but sometimes the quality may have some effect in making soap, and a proper rule to go by, so as to be able to find out whether the fat or the lye is in fault, might be useful. Green hickory, they say, makes the strongest lye: why? what does it contain more than other wood? Rotten wood will not do: which is the way to make the strongest lye? how long ought ashes to lie in the leach-hopper before they begin to drip? I am told they ought to remain there two or three months, with a small portion of water put on, and that they should become quite rotten before they begin to drip. Boiling water makes the strongest lye. J. B.

MURIATE OF POTASH.—Can any one say what is to be done with the "*solution of muriate of potash*," left after making hard soap, mentioned at page 83, vol. 1? Throw it away, some one exclaims. Yes, but is there any useful purpose it can be applied to? It might go to the manure heap. Has any body ever tried it as a fertilizer by itself, or does it require diluting with more water? In short, has any one ever tried any experiments with it? and what was the result? J. B.

SELECTIONS.

ON THE CULTIVATION OF GRASSES---Concluded.

LUCERNE—*Medicago sativa*, L.

Lucerne is a deep-rooted perennial plant, sending up numerous small and clover-like shoots, with blue or violet spikes of flowers. It is a native of the south of Europe, is extensively cultivated in the south of Spain, Italy, France, Persia, and Lima, in the two latter being cut all the year round,—and is partially cultivated in the United States and Great Britain. With us it is often called French clover, and is found to be as hardy as red clover. It was extensively cultivated by the Romans, and commended by Columella, as the choicest of all fodder. Three quarters of an aker of it, he thought abundantly sufficient to feed three horses during the whole year.

The soil for lucerne must be dry, friable, inclining to sand, and with a subsoil not inferior to the surface. Unless the subsoil be good, deep, and dry, it is in vain to attempt to cultivate lucerne. A friable, deep, sandy loam is excellent for it. No land is too rich for it.

The preparation of the soil consists in deep plowing and minute pulverization. Loudon recommends trenching for it. But a good preparation is a potato crop, heavily dressed with long manure, the ground plowed very deep, and the manure buried at the bottom of the furrow, and the crop kept perfectly free from weeds.

The season most proper for sowing in the northern and eastern States is about the 1st to the 15th of May, when the ground has become sufficiently warmed to promote quick germination.

The manner of sowing lucerne is either broadcast or in drills, and either with or without an accompanying crop. Broadcast, with a very thin cast of winter rye, is most gen-

erally preferred in the United States; though drills, by enabling the cultivator to keep out grass and weeds, promise the greatest permanency to the crop. A gentleman, who has sown in drills, three feet apart, and cultivated alternate rows of mangle wurtzel with the lucerne, speaks in high commendation of the practice. Arthur Young recommends drilling at nine inches.

The quantity of seed, when the broadcast method is adopted, is from fifteen to twenty pounds; in the United States, sixteen pounds is the usual quantity,—and when drilled, eight to twelve pounds suffices. The ground should be perfectly pulverized, the seed put in with a fine harrow, and the operation of sowing finished with a roller.

The after culture of lucerne, sown broadcast, consists in harrowing, in the spring, to destroy grass and weeds; rolling, after harrowing, to smooth the soil for the scythe; and such occasional top-dressings with gypsum, ashes, or rotted manure, as the plants may require, or the convenience of the farm best afford. The harrowing may commence the second year, and the weeds collected should always be carefully removed. In succeeding years, two harrowings may be applied, one in spring and the other in the latter part of summer. If in drills the crop must be kept clean by the hoe, cultivator, &c. Liquid manure from the cattle yard is an excellent manure for this crop.

The taking of lucerne, by mowing, for soiling or hay, or by tethering, hurdling, or pasturing, may be considered the same as for clover. Lucerne frequently attains a sufficient growth for the scythe from the 10th to the 20th May; and in soils that are favorable for its culture, it will be in a state of readiness for cutting a second time in twenty or twenty-five days, being capable of undergoing the same operation, at nearly similar intervals of time, during the whole of the summer season. In the United States, in a good soil, it may be cut, for soiling, four, and sometimes five times in the season.

The application of lucerne is, with us, generally for the purpose of soiling, with the exception sometimes of the last cutting. It is advantageously fed in its green state to horses, cattle, and hogs: but as a dry fodder, it is also capable of affording much sustenance, and as an early food for ewes and lambs, may be of great value in particular cases. All agree in extolling it as food for cows, whether in a green or dried state, and it is said to be much superior to clover, both in increasing the milk and butter, and in improving their flavor. In its green state, care is necessary not to feed too much at a time, especially when moist, as cattle may become hoven or blown with it. It is a good precaution to cut it the day before it is used, and to let it wilt in the swath. When made into hay, lucerne should never be spread from the swath, but managed as directed for clover. It may be housed before perfectly dry, if it is alternated in the mow with layers of straw, which imbibe the superabundant juices, and thereby become grateful and nutritious to the farm stock, when fed with the lucerne.

Soiling is a term applied to the practice of cutting herbage crops green, for feeding or fattening live stock. On all farms under correct management, a part of this crop is cut green for the working horses, often for milch cows, even when at pasture; and in some instances, both for growing fattening cattle. On small farms, this crop is of immense advantage, as affording a ready substitute for pasture.

The produce of lucerne, cut three times in a season, has been stated of from three to five, and even eight tons per aker. In soiling, one aker is sufficient for five or six cows during the soiling season.

One of our farmers has kept eight cattle (two oxen and six cows) upon an aker of lucerne, during the season, with a range of three or four akers of pasture. Say, however, the produce is equal to a full crop of red clover in value, then, yearly for nine or ten years, (its ordinary duration in a productive state,) at an annual expense of harrowing and rolling, and a triennial expense of top-dressing, it will be of sufficient value to induce farmers, who have suitable soils, to lay down a few akers of this crop near their homesteads.

To save seed, the lucerne may be treated precisely as red clover, i. e., obtained from the second cutting, or even the third, the crop being left to ripen its seed. It is easily threshed, the grains being contained in small pods, which readily separate under the flail, threshing-machine, or clever-mill.

CULTIVATED GRASSES.

"The forage, hay, and pasture grasses," says Loudon, of which we are now about to treat, are found clothing the surface in every zone, attaining generally a greater height, with less closeness at the roots, in warm climates; and producing a low, close, thick, dark green nutritive herbage, in the cooler latitudes. The best grass pastures are found in countries that have least cold in winter, and no excess of heat in summer, as in Ireland, England, Holland, and Denmark. In every zone, where there are high mountains, there are certain positions between the base and summit, where, from the equilibrium of the temperature, turf may be found equal to that in marine islands."

The universal presence of the forage grasses, and the rapidity with which all soils become covered with them, when left uncultivated, is the obvious reason why their selection and systematic culture are of but recent date. This branch of culture originated in England, about the middle of the seventeenth century. It at first embraced only rye-grass, but afterwards extended to cock's-foot, timothy, foxtail, &c. The Duke of Bedford made the latest and most laborious efforts, towards attaining a knowledge of the comparative value of all the British and some foreign grasses worth cultivating. The result is given in the Appendix to Sir H. Davy's *Agricultural Chemistry*.

With respect to the general culture of *grasses*, though no department of agriculture is more simple in the execution, yet, from the nature of grasses, considerable judgment is required in the design. Though grasses abound in every soil and situation, yet all the species do not abound in every soil and situation indifferently. On the contrary, no class of perfect plants are so absolute and unalterable in their choice in this respect. The creeping-rooted and stoloniferous grasses will grow readily on moist soils; but the fibrous-rooted species, and especially the more delicate upland grasses, require particular attention as to the soil in which they are sown; for in many soils they will not come up at all, or they die in a few years, giving place to the grasses which would naturally spring up in such a soil, when left to a state of nature. Hence in sowing down lands for permanent pasture, it is a good method to make choice of those grasses which thrive best in adjoining and similarly circumstanced pastures, for a part of the seed, and to mix with these what are considered the very best kinds.

Although the catalogue of grasses, indigenous and foreign, which are useful for forage, is extensive, yet the number cultivated, or propagated artificially, is very limited, and indeed it is but racently, not perhaps half a century, that we have been in the habit of sowing grass-seeds at all. The practice is however gaining, and it is reasonable to believe, that many species will ere long be advantageously cultivated, which have hitherto altogether escaped the notice of the farmer.

We shall confine our remarks, at present, to those species which are cultivated, upon a greater or less scale, among us. And we begin with that deemed most valuable as a forage grass, at least in the northern States; viz:

1. *Timothy*, better known in the east as *herds-grass*, and in Europe as *meadow cat's-tail*, (*Phleum pratense.*) This is the general forage grass of the northern States. It finds here a congenial climate, particularly in mountainous districts, is perfectly hardy, perennial, highly nutritious, and gives an abundant product; and it should not escape the notice of the farmer, that it is far more rich in nutritious properties, when cut in the seed, than when cut the blossom. It is often sown alone, but more generally with clover; though the two are not well conjoined, for the clover is in condition to be cut two weeks before the timothy is in seed. Yet where the grounds are intended to be left a considerable time in grass, the loss is not so material; for the clover gradually disappears, while the timothy enlarges its volume, and fills the ground. Although the crop is less nutritious when cut early, the aftermath compensates, in some measure, for the deficiency; for, if suffered to seed, the aftergrowth is comparatively trifling, and the exhaustion to

the soil is far greater. The maturing of the seeds, of all crops, is what most impairs the fertility of the soil. Another consideration which renders this grass desirable is the value of the seed which it affords, and which may be saved without materially deteriorating the hay crop. From ten to thirty bushels of seed are taken from an aker by many farmers, in the valley of the Mohawk, and constitute a large item of their farm profits. The seed of this grass being small, particular care is requisite in pulverizing the ground for its reception, and, when practicable, the roller should follow the seeding process. The seed may be sown in autumn with winter grain, in the spring with a crop, or at midsummer with buckwheat. Upon stiff, tenacious clays, the latter practice has been found to be advantageous, unless the season prove unusually dry.

In cutting timothy for seed, the most approved mode is to reap the tops, say twelve inches long, with a sickle, to the width of a swath or two, and then immediately to cut down the stems with a scythe. In this way, all foul seeds may be avoided, and a suitable place provided, as the cutting progresses, to spread and dry the tops.

2. *Red-top*, the *herds-grass* of the middle and southern and middle States, (*Agrostis vulgaris,*) is indigenous, perennial, and valuable for hay and pasture, on lands adapted to its growth, which are reclaimed swamps and other moist grounds, — in which it almost every where springs up and flourishes spontaneously. This grass and timothy are fit for the scythe about the same time, and are therefore very suitable kinds to be sown together. Its cultivation is yet very limited, though of manifest advantage. The seeds are kept for sale in the seed-shops. The *white-top* or *foul-meadow* is said, by Muhlenburgh, to be a variety of the *A. vulgaris.*

3. *American Cock's-foot* and *Orchard-grass* are different names given to the *Dactylis glomerata* of botanists. This is one of the most abiding grasses we have. It may be known by its coarse appearance, both of the leaf and seed-spike, its broad leaves, seed-glumes resembling a cock's foot, and also by its whitish-green hue. It is probably better adapted than any other grass to sow with clover and other seeds for permanent pasture, and for a crop of hay, as it is fit to cut with clover, and grows remarkably quick after being cropped by cattle. Five or six days' growth in summer suffices to give a good bite. Its good properties consist in its early and rapid growth, and in its resistance of drouth; but all agree, that to obtain its greatest value, it should be kept closely cropped. Sheep, it is said, will pass over every other grass to feed upon it. If suffered to grow long without being cropped, it becomes coarse and harsh. Arthur Young and Mr. Cook commend it highly, and the latter cultivates it on an extensive scale at Holkham. Colonel Powell, of Pennsylvania, after growing it ten years, declares, that it produces more pasturage than any cultivated grass that he has ever seen in America. On being fed very close, it has been found to afford good pasture after remaining five days at rest. It is suitable to all arable soils. I abounds in seed, which is easily gathered; but, on account of its peculiar lightness, (the bushel not weighing more than twelve or fourteen pounds,) it should be spread on a floor and sprinkled with water a day or two before it is sown, that it may become saturated, and more easily germinate. Two bushels of seed are sown to the aker, when sown alone; and half this quantity when sown with clover. The orchard-grass should be cut early when intended for hay, as it diminishes two-sevenths in value, as hay, by being permitted to ripen its seeds. When cut early with clover, the after-growth, or rowen, is very abundant.

4. *Tall Oat-grass*, (*Avena elatior.*) Dr. Muhlenburgh, and Mr. Taylor, of Virginia, place this at the head of good grasses. "On the continent of Europe," says Dickson, "in comparison with common grass, it is found to yield in the proportion of twenty to two." Dr. Muhlenburgh says, of all others it is the best grass, and earliest for green fodder and hay. The Doctor was probably not advised of its deficiency in nutritive matter, as indicated in the experiments of Sinclair. It possesses the advantage of early, late, and quick growth, for which the orchard-grass is esteen, and is well calculated for a pasture grass. We have measured it in June, when in blossom, (at the time it should be cut for hay,) and found the seed-stems four and a half feet long. The latter-math, it will be perceived by the table which is appended, is naarly equal in weight, and superior in nutritious matter, to the seed crop. Sinclair says it thrives best on a strong tenacious clay; and Muhlenburgh prefers for it a clover soil. Dickson speaks well of it, and says it makes good hay, but is most beneficial when retained in a close state of feeding. The seed falls and wastes unless gathered early, and with care. Sow at the rate of six or eight pecks the aker, with grain, in the spring.

5. *Sweet-scented Vernal Grass* (*Anthoxanthum odoratum*) is a foreign perennial grass, of dwarfish habit, sown principally on grounds intended for pastures, for the very early feed which it affords, and for its growing quick after it is cropped. Muhlenburgh says it delights in moist soils; the 'Bath Papers' assure us it does well in clayey loams; and Dickson, that it grows in almost any soil, including sands and bogs. It is eaten by oxen, horses, and sheep, though not so freely as some other grasses are.

6. *Meadow Foxtail* (*Alopecurus pratensis*) is also a foreign grass, possesses all the advantages of early growth with the preceding, and is much more abundant in produce and nutriment, but is not so well suited to different soils. It almost invariably constitutes one of the several seeds which are sown togeth by the British farmer, particularly when the grounds are intended for pasture. "Of all the English grasses," says Dickson, "this seems to be the best adapted for cutting twice. It starts up very rapidly after mowing or feeding, and produces an abundant aftermath." It does best in moist soils, whether loams, or clays, or reclaimed swamps. It abides nine or ten years. Sheep and horses have a better relish for it, according to G. Sinclair, than oxen. It abounds in seed, says Middleton, which is easily collected from the swath during mowing time.

The two preceding grasses were probably introduced first some years ago, into the neighborhoods of Boston, N. Bark, Philadelphia, &c., by emigrants, or others; and as they seed earlier than the orchard-grass or tall oat, and before they would be likely to be cut for hay, the seeds have probably been scattered, and these grasses are now found in these neighborhoods, among the natural grasses of the meadows. A great advantage resulting from sowing these seeds, as also of the orchard and tall meadow-oat, is, that they are disseminated upon the farm, and thus tend to augment the natural growth of herbage.

7. *Rye-grass*, (*Lolium perenne.*) This is extensively cultivated in Scotland, and in the north of England, and forms the principal seed sown with clover. There are several varieties; some of which are annual, and others biennial and perennial. The Italian rye-grass has within a few years attracted notice, as being superior to the other kinds. The common kinds have been repeatedly tried in the United States, but generally with poor success—our summers being too dry, and our winters too cold for it. We have also twice tried the Italian variety, but the result has induced us to abandon it, as unsuited to our climate. To those who wish to try the rye-grass, it will be proper to add, on the authority of Dickon and others, that it is a good pasture grass, and is valuable in rich moist meadows; that cows and sheep eat it freely; and that Arthur Young considers the orchard-grass superior to it. The biennial rye-grass is preferred for a first crop with clover, as being of larger growth, and better suited to alternate husbandry. The perennial is preferred for firounds that are to be left longer in grass, as it abides several years. The Italian variety gives the largest produce, and, were it hardy enough to withstand the cold of our winters, would no doubt become a valuable acquisition to our husbandry.

The seed sells in the American shops at three to four dollars a bushel. On the whole, we do not recommend its culture, except in elevated or humid districts.

We have enumerated, we believe, all the grasses, that have hitherto been cultivated in the United States to any considerable extent. There are many other species, indigenous and foreign, which might be worthy of our notice, and which may yet form valuable accessions in our husbandry, whenever they shall be brought into notice, cultivated, and their merits determined, in experimental farming. There are other grasses that spring up spontaneously, and which produce a good turf without labor, as the blue-grass of the western States, or flat-stalked meadow-grass,

(*Poa compressa,*) ethe smooth-stalked meadow-grass, (*Poa pratensis,*) the red meadow-grass, (*Poa aquatica,*) and the rough-stalked meadow-grass: (*Poa trviaalis;*) also many species of the *festuca* and *agrostis* genera, particularly t he *A. stricta,* of which our *quack* or witch-grass is a variety.

Upon this last it may be well to remark, that Dr. Richardson first brought this grass into notice, as a superior forage, well adapted to reclaimed bogs and swamps, particularly in mountainous districts, in localities where other grasses will not thrive. The peculiar value of the fiorin arises from the concrete sap laid up in its numerous joints; and indeed it may be remarked that the straw or stems, of all plants, are rich in nutriment in proportion to the frequency of their joints, which are peculiarly the deposit of nutritious matters. The fiorin suffers less in weight and nutriment, by frosts, than any other grass; and of course affords good winter pasture. It is propagated by stolens or roots; the ground being previously drained, and ameliorated by one or more crops, for which purpose potatoes or other root crops are preferable. The surface is made smooth and clean, the strings or roots are then strewed over it, and a compost, consisting in part of bog-ashes, lime and loam, spread over, sufficient to prevent the roots being blown away. The quack, switch, or witch-grass, a variety of the fiorin, is highly nutritious, roots and all, and, if cultivated for forage, might prove a profitable crop; but the objection is, it interferes too much where it is not wanted, and will stay where it is once introduced. In pasture grounds, however, it seldom abides after the third year.

We will endeavor to class the grasses of which the seeds can be procured in this country, according to the best data in our possession, for the uses to which they are best adapted, and to indicate the soils on which they respectively thrive. but before we do this, we will introduce Dickson's classification of grasses for different soils in Great Britain, which will show the quantity and variety of seeds sown to the aker in that country.

Clayey Soils.—Marl or cow-grass,* 5 lbs.; trefoil, 5 lbs.;† crested dog's-tail grass, 10 lbs.; meadow fescue-grass, one bushel; meadow foxtail grass, one bushel. And when the three last cannot be procured, meadow soft-grass, two bushels; meadow cat's-tail, or timothy, four pounds.

Loamy Soils.—White clover five pounds; crested dog's-tail, ten pounds; rye-grass, one peck; meadow fescue-grass, three pecks; meadow foxtail, three pecks, yarrow, two pecks. Or, where the second cannot be had, rye-grass, one peck; and rib-grass, four pounds. And in room of the last three, meadow soft grass, half a bushel; timothy-grass, four pounds; marl or cow-grass, five pounds.

Sandy Soils.—White clover, seven pounds; trefoil, five pounds; burnet, six pounds; rye-grass, one peck; yarrow, one bushel. Or, instead of the last, rib-grass, four pounds; rye-grass, one peck.

Chalky Soils.—Burnet, ten pounds; trefoil, five pounds; white clover, five pounds; yarrow, one bushel, or, in its place, rye-grass, one bushel.

Peaty Soils.—White clover, ten pounds; crested dog's-tail grass, ten pounds; rye-grass, one peck; meadow foxtail grass, two pecks; meadow fescue-grass, two pecks; cat's-tail, or timothy grass, one peck. Or in place of the second, fourth, and fifth, meadow soft-grass, six pecks; rib-grass, five pounds; marl or cow-grass, four pounds. Our classification embraces—

I. Grasses best suited to arable lands, and designed to alternate with grain and roots.

II. Those best adapted for hay or meadows; and,

III. Grasses which are most profitably sown for perennial pastures.

I. There are several descriptions of land which are much more profitably employed in tillage than in grass, particularly those that are dry or light, and which have little tendency to produce good herbage. Yet constant cropping with grain would soon exhaust them of fertility, without an expense for manure which few can afford. The system of introducing artificial or sown grasses, after two, three, or four year's tillage, is happily calculated to avert the evil, and constitutes one of the late improvements in farming. "The lands are thereby not only prevented from being so much exhausted as would otherwise be the case, and at the same time rendered fit for the growth of particular kinds of grain, without the necessity of fallowing; but a much larger proportion of green and other food, than could otherwise be obtained, is provided for the support of live-stock." The grasses best adapted to this purpose, are the red and white clovers, lucerne, and the orchard, tall oat, timothy, and rye grasses. Clover is the primary dependance on all soils that will grow it, and particularly where gypsum can exercise its magic powers. As vegetables are said to exhaust the soil in proportion to the smallness of their leaves, (the larger and more succulent these, the more nutriment the plant draws from the atmosphere, and the less from the soil,) clovers are entitled to the high commendation they have received among American farmers. But as these plants are liable to premature destruction by the frosts of winter, it is prudent and wise to intermix with their seeds those of some other grass more to be depended on. For this purpose,

On sands, light loams, and gravels—and these constitute the soils usually employed in convertible husbandry—the orchard-grass, or tall meadow oat-grass, appears best calculated to insure profit. They grow early, delight in a clover soil, and are fit for the scythe when clover is in bloom—the period at which it ought to be made into hay. The hay from this mixture may be made before the harvest commences; and if the soil is good, a second crop may be cut almost equal to the first. If intended for pasture, the second or third year, either of those grasses will afford more abundant herbage than timothy. Lucerne may be sown on deep sandy loams.

On clays and heavy loams, timothy may be sown alone, or those grasses named in the preceding paragraph, separate or mixed.

On wet soils and reclaimed swamps, as the only object of tillage *ought to be* to prepare the ground to be laid down in grass, the kinds indicated in the preceding remarks as suitable for such soils, and intended for meadow grasses, should be selected, yet so scanty is our assortment, that we can only name timothy and herds-grass.

II. MEADOWS.—These may be classed under three heads, viz:, low or alluvial lands, on the banks of rivers, creeks, and brooks; uplands naturally moist, or of clay or heavy loam; and reclaimed bogs and swamps. These soils, to adopt a common term, *are natural to grasses,* while the expense of tillage, and the uncertainty of a crop, render it most proper to appropriate them to grass. The objects, in stocking meadows, are, to select those grasses *which yield the greatest burden of hay, and afford the most nutriment for cattle.* When mixed seeds are employed, care should be taken to select those which can be most profitably cut at the same time. The impropriety of mixing timothy and orchard-grass, for instance, will be apparent, from observing that the last should be cut in the latter end of June, while the former continues to improve till the first of August. Timothy is undoubtedly the best grass which we can employ for meadows, on moist or tenacious soils. Herds-grass, and rough-stalked meadow-grass, often come in spontaneously. And if the timothy is left standing until its seeds have formed, seeds enough fall to supply new plants

For light loams, sands and gravels, the tall oat and orchard grasses are probably the best; and to these may be added red and white clover

The great difficulty is, to prevent the deterioration of meadows. This takes place from the better grasses running out, and giving place to coarser kinds, to mosses, and to useless and noxious plants; aided, often, by a neglect to keep them well drained.

Hence it is of the first importance to keep the surface soil free from standing water, by good and sufficient drains; and it often becomes necessary, and in most cases advisable, on a flat surface, to lay the land in narrow ridges, at right angles with the ditches. Another precaution to be observed is, not to depasture them with heavy cattle when the ground is wet and poachy. Harrowing in the fall has been found beneficial to meadows. It destroys mosses, covers the seeds of grasses which have fallen, or have been previously sown, and thus produces a succession of young plants. In Eu-

* Varieties of the trifolium pratense or red clover.

† Common red clover.

pe, top-dressings of lime, marl, compost, ashes, and yard nure are repeated at intervals of two or three years. In anders, extensive applications are made in this way, of urine of animals, after it has fermented, or been diluted. is collected in cisterns under the stables, and adjoining yard in which the stock are fed, summer and winter. ith us, the annual application of a bushel of plaster of ris is found beneficial, on most lands not absolutely wet. he gypsum not only thickens the verdure with clover, but dvantage to most of the other grasses. Stable manure should be applied only when it can be spared from the ore profitable uses of tillage, as it is far more beneficial ixed with the soil than spread upon the surface. It most onomical application as a top-dressing, is in the form of mpost, made by mixing it with bog-earth, river mud, the ash from the highways, or other rich earth, at the rate of e load of dung to five or six of earth. If turned and ixed well, this constitutes a valuable top-dressing for grass ounds, and is best applied in the autumn. When these ans fail to insure a good crop of hay, it is time to resort the plow, a course of crops, and re-seeding.

III. Pastures.—Here the object is to obtain those grasses hich are most nutritious, relished by cattle, and which pply green feed from March to December, or such a mixre as will give a succession of fresh herbage during the razing season. The tall-oat, rye, and orchard grasses are st adapted to the lighter and drier soils, where the spontaeous growth of clover and other indigenous grasses should encouraged by top-dressings, or the application of plaster. moist and stiff grounds, timothy and herds-grass may be wn with the tall-oat. Our observations, under the preeding head, in regard to draining, top-dressing, sowing eds, and scarifying or harrowing, lose none of their force hen applied to pasture grounds. It is believed, that, if nce introduced upon our farms, the valuable grasses which e want would propagate themselves. If so, how imporant is it that we obtain them, particularly those which our ed-shops already afford.—*Buel.*

ON SOILS.

Soils are those portions of the earth's surface, which con in a mixture of mineral and vegetable or animal substanes, in such proportions as adapt them to the support of egitation. Rocks are the original basis of all soils, which y the convulsions of nature, or the less violent but long ontinued but equally efficient action of air, moisture and ost, have been broken into fragments more or less minute. here are various gradations of these changes.

The Texture of Soils.—Some rocks exist in large boulers or rounded stones, that thickly overspread the surface nd mingle themselves with the earth beneath it, giving to the name of rocky soil. The smaller sizes but equal prelence of the same materials, give to the surface where they hound, the character of a stony soil. A third and more inute division is called a gravelly soil; a fourth is sandy il; a fifth constitutes a loam; and a sixth, in which the parcles of earth are reduced to their greatest fineness, is known nder the name of clay soil. The two first mentioned, are ot properly distinct soils, as the only support of any protable vegetation, is to be found in the finer earth, in which he rocks and stones are embedded. In frequent instances, hey materially benefit the crops, in the influence produced y the shade, moisture, and protection from winds, afforded y them; and by the gradual decomposition of such as conin lime, potash and other fertilizing materials, they conribute to the support of the soil. This last effect is aided y the apparently worthless vegetable life which they yield o the living mosses that cling to their sides and even penrate their fissures, thus imperceptibly corroding the solid ructures and preparing them for future usefulness as soils. If we add to the above, a peat or vegetable soil, we shall ave the material divisions of soils, as distinguished by their exture.

Other Classifications of Soils.—Soils are also distinguished by their tendency to absorb and retain water, grav- and sand holding very little, while clay and peat readily bsorb and retain a great deal; by their constant saturation rom perennial springs, which are called springy soils; by he quanty of vegetable and animal matter they contain; by their porosity or adhesiveness; by their chemical character, whether silicious, argillaceous or calcareous; by the quality and nature of the vegetation they sustain; and lastly, and by far the most important, they are distinguished by their fertility or barreuness, the result of the proper adjustment and combination of most of the conditions enumerated. Deserts of sands, layers of rocks, stone or pure gravel, and beds of marle and peat are not soils, though containing many of their most important elements.

It is apparent to the most casual observer, that soils most frequently and by almost imperceptible degrees, change from one character to another, and that no classification therefore, however minute, will suffice to distinguish each.

Some obvious yet simple distinctions, which are usually recognized, must nevertheless be assumed for future reference. For this purpose, and to avoid unnecessary deviations from what should be a common standard, we shall adopt the arrangements as made by Professor Johnston, which is based principally upon their chemical constituents.

1. deg. *Pure clay* (pipe-clay) consisting of about 60 of silica and 40 alumina and oxide of iron, for the *most part* chemically combined. It allows no silicious sand to subside when diffused through water, and rarely forms any extent of soil.

"2 deg. *Strongest clay soil* (tile-clay, unctuous clay) consists of pure clay mixed with from 5 to 15 per cent. of a silicious sand, which can be separated from it by boiling and decantation.

"3 deg. *Clay loam* differs from a clay soil, in allowing from 15 to 30 per cent. of fine sand to be separated from it by washing, as above described. By this admixture of sand, to its parts are mechanically separated, and hence its free and more friable nature.

"4 deg. A *loamy soil* deposits from 30 to 60 per cent. of sand by mechanical washing,

"5 deg. A *sandy loam* leaves from 60 to 90 per cent. of sand, and

"6 deg. A *sandy soil* contains no more than 10 per cent. pure clay.

"The mode of examining with the view of naming soils, as above, is very simple. It is only necessary to spread a weighed quantity of the soil in a thin layer upon writing paper, and, to dry it for an hour or two in an oven or upon a hot plate, the heat of which is not sufficient to discolor the parer—the loss of weight gives the water it contained. While this is drying, a second weighed portion may be boiled or otherwise thoroughly incorporated with water, and the whole then poured into a vessel, in which the heavy sandy parts are allowed to subside until the fine clay is beginning to settle also. This point must be carefully watched, the liquid then poured off, the sand collected, dried as before upon paper, and again weighed. This weight is the quantity of sand in the known weight of *moist* soil, which by the previous experiment has been found to contain a certain quantity of water.

"Thus, suppose two portions, each 200 grs. are weighed and the one in the oven looses 50 grains of water, and the other leaves 60 grs. sand,—then the 200 grs. *moist* are equal to 150 of *dry*, and this 150 dry soil contain 60 of sand, or 40 in 100 (40 per cent. It would, therefore, be properly called a *loam*, or *loamy* soil.

"But the above classification has reference only to the clay and sand, while we know that lime is an important constituent of soils of which they are seldom entirely destitute. We have, therefore,

"7 deg. *Marly soils*, in which the proportion of lime is more than 5 but does not exceed 20 per cent. of the whole weight of the dry soil. The marl is a sandy, loamy, or clay marl, according as the proportion of clay it contains would place it under the one or other denomination, supposing it to be entirely free from lime, or not to contain more than 5 per cent., and

"8 deg. *Calcareous soils*, in which the lime exceeding 20 per cent. becomes the distinguishing constituent.—These are also calcareous loams, or calcareous sands, according to the proportion of clay and sand which are dresent in them.

"The determination of the lime also, when it exceeds 5 per cent., is attended with no difficulty.

"To 100 grs. dry soil diffused through half pint of cold water, add half a wine-glass full of muriatic acid (the spirit

of salt of the shops, stir it occasionally during the day, and let it stand over night to settle. Pour off the clear liquor in the morning and fill up the vessel with water, to wash away the excess of acid. When the water is again clear, pour it off, dry the soil and weigh it—the loss will amount generally to about one per cent. more than the quantity of lime present. The result will be sufficiently near, however, for the purposes of classification. If the loss exceed 5 grs. from 100 of the dry soil, it may be classed among the marls, if more than twenty grs. among the calcareous soils.

"Lastly, vegetable matter is sometimes the characteristic of a soil, which gives rise to a further division of

"9 DEG. *Vegetable molds*, which are of various kinds, from the garden mold, which contains from 5 to 10 per cent., to the peaty soil, in which the organic matter may amount to 60 or 70. These soils also are clayey, loamy, or sandy, according to the predominant character of the earthy admixtures.

"The method of determining the amount of vegetable matter for the purpose of classification, is to dry the soil well in an oven, and weigh it; then to heat it to dull redness over a lamp or bright fire till the combustible matter is burned away. The loss on again weighing is the quantity of organic matter."

The foregoing are only such general divisions as possess properties sufficiently common to each, to require a treatment nearly similar. Besides their principal component parts, every soil must contain in greater or less quantities, all the elements which enter into the composition of vegetables. They may have certain substances which are not necessary to vegetable life, and some one or all of such as are, may be contained in excess; yet to sustain a healthy prolific vegetation they must hold, and in a form fitted to its support, silex alumina, carbonate of lime, sulphate of lime, potash, soda, magnesia, sulphur, phosphorus, oxide of iron, manganese, chlorine, and probably iodine. These are called the inorganic, or earthy parts of the soils, as they are found almost exclusively in combination with earths, salts, or minerals. They however constitute from less than 0.5 (one half of one) to over 10 per cent. of all vegetables. In addition to these, fertile soils must also contain, carbon, oxygen, nitrogen and hydrogen, which are called the organic parts of soils, from their great preponderance in vegetables and animals, of which they constitute from about 90, to over 99 per cent. of their entire substance.

CLAY SOILS—THEIR CHARACTERISTICS AND TREATMENT.—Clay soils are usually denominated cold and wet, from their strong affinity to water, which they generally hold in too great excess for rapid or luxuriant vegetation.—The alumina which exists in clay, not only combines with water forming a chemical compound, but the minute division of its particles and their consequent compactness oppose serious obstacles to the escape of such as rests in or upon it. Hence the necessity of placing it in a condition to obviate these essential defects.

The most effectual method of disposing of the surplus water in clay soils, is by underdraining. This draws off rapidly yet by imperceptible degrees, all the excess of water, and opens it to the free admission of atmospheric air; and this, in its passage through the soil, imparts heat and such of the gasses it contains, as are useful in sustaining vegetation. When these are not constructed, open drains should be formed wherever water stands after rains. The slight elevation and depression of the surface made by careful plowing, will probably be sufficient, if they terminate in some ravine or artificial ditch, and have size and declivity enough to pass off the water rapidly.

Clay soils are greatly improved by coarse vegetable manures, straw, corn-stalks, chips, &c., which tend to the separation of its particles. The addition of sand is very beneficial, but this is too expensive for large fields. Lime is also a valuable material for a clay soil, as by the chemical combinations which are thereby induced, the extreme tenacity of the soil is broken up, while the lime adds an ingredient of fertility, not before possessed by it perhaps, to an adequate extent. Gypsum has the same effect in a more powerful degree. Paring and burning (by which the surface containing vegetable matter if collected into heaps and fired, reducing the mass to a charred heap, which is again spread over and mixed with the soil.) produce the same result. This is a practice which has been in use in different parts of Europe, and although attended with immediate and powerful results, it is too expensive for general introduction into a country, where labor is high, and land and its products comparatively cheap.

The plowing of clay lands for spring crops should be done in the autumn if practicable, by which the adhesiveness is temporarily destroyed, the earth is finely pulverized by the frost, and they are left in the finest condition for early spring sowing and without additional working. If plowed in the spring, it should be done when they are neither too wet or dry; if the former, the earth subsequently bakes, and for a long time it is impenetrable to the hoe or the teeth of the harrow; if too dry, they are so compact as to be turned over only with great effort, and then in solid lumps. The action of the atmosphere, will pulverize these masses of baked earth after a time, but not sufficiently early for the convenience or advantage of such crops as are intended immediately to follow the plowing.

No soils are so tenacious of the manures which may be incorporated with them as the clays. They form an intimate combination, both mechanical and chemical, and hold them securely against waste from drainage or evaporation for an indefinite time, till the growing crops demand them. They also greedily seize upon and hoard up all such fertilizing principles as are conveyed to them by the air and rain. We may mention as an example of their efficiency in abstracting vegetable nutrition from the atmosphere, that many of them when thrown up from a great depth from below the surface, and entirely destitute of organic remains (vegetable or animal matter,) after an exposure for some months to its ameliorating influence, became capable of bearing large crops without the aid of manure. This is particularly true of the clays which rest on the Onondaga limestone, an extensive groupe occupying the central and northwestern part of New York.

The clays are admirably adapted to the production of most of the grains; and the red and white clovers cultivated in the United States. These they yield in great profusion and of the best quality; and so peculiarly suited are they to meadows and pasturage, that they are styled by way of eminence, *grass lands*. They are justly characterized as strong and lasting soils, and when properly managed and put to their appropriate use, they are esteemed as among the choicest of the farmer's akers.

SANDY SOILS AND THEIR MANAGEMENT.—The character and treatment of sandy soils, are in almost every particular the reverse of those of clay. They do not possess the property of adhesiveness, and they have but little affinity for water which escapes from them almost as soon as it falls. They have but a slight hold upon the manures which are diffused through them; they are loose in the texture, and may be plowed at any time with equal advantage, provided the sowing or planting is to follow immediately.

As clay soils are much benefitted by a mixture of sand, so likewise are sandy soils greatly improved by the addition of clay, yet in a much higher degree; for though it would never pay, as a general rule, to add sand to clay, yet the addition of a few loads of the stiffest clay to a light sand, would in almost every instance much more than compensate for the trouble and expense. For this purpose, the clay should be thinly spread in autumn upon sward land previously plowed, and the winter's frost will effectually separate the particles. It should then be harrowed thoroughly and deeply in the spring, and subsequently plowed if necessary. Such a dressing on a light crawling land, is more than equivalent to an equal quantity of the best manure, and will be permanent in its effects. Clay and sand are necessary to each other, as they both contain qualities which are essential to good soil; and that will always be found the best which has the proper proportion of each.

Sandy soils are improved by the frequent use of a heavy roller: it cannot be used too often. They require to be made more compact, and any treatment that secures this object, will be advantageous.

Lime, by its chemical action on the constituents of soils, while it separates clay, renders sand more adhesive; and when cheaply obtained, it is always a profitable dressing for sandy soils, to the full amount they may require. Gypsum, in considerable quantities, has an effect similar to lime, but

clay and sand and when added in similar portions, pro-
ces a striking increase in the crops of sandy soils. Clay
ries containing either carbonate, sulphate, or phosphate
lime, are of great value to sandy soils. Equally benefi-
l are ashes leached or unleached, peat or vegetable man-
es of any kind. Some calcareous sands, containing a
ge proportion of lime, like those of Egypt and extensive
ions in the Barbary States, will produce luxuriantly, if
plied with a slight addition of manure and an abundance
water. Sandy soils can never be profitably cultivated till
y have acquired sufficient compactness and fertility to
tain a good growth of grass or clover; and when once
ught to this condition, they are among the most valua-

They are at all times, easily plowed and worked; they
uire no draining; and though light and dry, are quick and
dly soils, giving an immediate and full return for the la-
and measure bestowed upon them. When in a condi-
n to produce grass, sheep are eminently adapted to pre-
rve and augment their fertility, and by their incessant
grations over it the sharp hoofs pack the surface closely,
ducing the same effect as the roller.

Gravelly Soils, are in some respects similar to sand, but
ch less desirable, being appropriately termed *hungry*.
ey are also like the latter, peculiarly leachy, but in an
reased degree, permitting the rapid escape of manures
h by evaporation and drainage. Such as are calcareous
composed of limestone pebbles, are in a great measure
subject to these objections; as the disposing affinities of
e lime, (of which enough will be found to exist in the soil
a finely comminuted or divided state, which in this con-
ion is enabled to act efficiently,) have a tendency to retain
vegetable matters, thus compacting the soil and holding
atever pabulum or food of plants, may from time to time
given to it for the wants of future crops. Unless of this
t description, gravelly soils should not be subjected to
ge, but appropriated to pasturage, when sheep will keep
m in the best and most profitable condition of which they
capable.

Loamy Soils being intermediate between clay and sand,
esses characteristics and require a treatment approxima-
g to one or the other, according to the predominance of
er quality. They are among the most desirable soils for
various purposes of agriculture.

Marly and Calcareous Soils, have always a full sup-
y of lime, and like the loams, they frequently incline to-
rds a clay or sand, requiring a treatment corresponding
their character. Putrescent and vegetable manures in-
ase their fertility and they are held with great tenacity
exhausted by crops. In durability and lastingness they
not be exceeded.

Alluvial Soils, are such as have been formed from the
shing of streams. They vary in their characteristics,
m a mixed clay to an almost pure sand; but generally
y combine the components of soils in such proportions as
designated by *loamy soils* or *sandy loams*. When thus
med they are exceedingly fertile, and if subject to the
ual overflow of a stream, having its sources far above
m, they usually receive such an addition to their produc-
ness, as enables them to yield large crops perpetually
hout further manuring.

They are for the most part easily worked, and are suited
he various purposes of tillage and meadows; but when ex-
ed to overflowing, it is safer to keep them in grass, as
e crop is less liable to injury by a freshet; and where sub-
t to washing from the same cause, a well matted sod is
best protection which can be offered against it. Many
the natural grasses which come into these meadows yield
odder of the highest value.

Peaty Soils. These are composed almost wholly of peat,
are frequently called vegetable soils. They are exten-
ly diffused between the latitudes of 42° and 60° north,
level with the ocean, and are frequently found in much
er latitudes, when the elevation of the surface produces
rresponding temperature. They generally occupy low
mpy levels, but sometimes exist on slight northern de-
ities, where the water in its descent is arrested by a suc-
sion of basin-shaped cavities.

Their peaty character is acquired by the growth and par-
decay through successive ages, of various aquatic plants, the principle being sphagums and lichens. In swamps, many of which were probably small lakes in their origin the peat is found of an unknown depth, reaching in some instances between thirty and forty feet. On declivities and occasional levels, the peat is sometimes only a few inches in thickness. It is of a blackish or dark brown color, and exists in various stages of decay, from the almost perfect state of fallen stumps and leaves, to an imperfectly defined, ligneous mass or even as impalpable powder.

In its natural state, it is totally unfit for any profitable vegetation, being saturated with water, of antiseptic nature which effectually resists putrefaction or decay. When thrown out of its native bed and exposed to drain for a few months, much of it is fit for fuel; and it is always advantageous to the muck heaps, as an absorbent of the liquid and gaseous portions of animal and other volitile manures; or it is of great utility when applied alone to a dry gravelly or sandy soil.

Cultivation of Peat Soils. When it is desirable to cultivate a peat soil, the first process is to drain it effectually of all the moisture which has given to it and sustained its present character. The drains must be made sufficiently near and on every side of it; and so deep as to prevent injurious capillary attraction of the water to the surface. When it has been properly drained the hammocks if any, must be cut up with the mattock or spade and thrown into heaps, and burnt after they are sufficiently dried, and the ashes scattered over the surface. These afford the best top-dressing it can receive. Sand or fine gravel, with a thorough dressing of barn-yard manure and lime, should then be added. On some of these, according as their composition approaches to ordinary soils, good crops of oats, corn roots, &c., may be grown, but they are better suited to meadows, and when thus prepared, they will yield great burdens of clover, timothy, red-top, and such other grasses as are adapted to moist soils. Subsequent dressings of sand, lime, manure and wood ashes, or of all combined, may be afterwards required when the crops are deficient, or the grasses degenerate.

Peat contains a large proportion of carbon, and the silicates in which such soils are deficient, and which they procure only in small proportions from the farm-yard manure, but more largely from the sand or gravel, are essential to furnish an adequate coating for corn stalks, straw, and the valuable grasses. As they are exhausted they must be again supplied or the crops will fail. Besides yielding an important food to the crop, lime is essential to produce decomposition in the mass of vegetable matter, as well as to combine with and aid in furnishing to the growing plants, such of their food as the atmosphere contains. Ashes are one of the best applications, as they possess the sillicates, lime, potash, and other inorganic materials in abundance, and in a form readily adapted to vegetable nutrition. Gypsum is also a valuable manure for peaty soils.

SOME FACTS ABOUT THE CURCULIO.

The curculio having last year destroyed our (Bissell and Hooker's) plums, cherries and nectarines, I determined this season to save at least a portion, and succeeded so well that our plum trees were overloaded and needed to be relieved of part of their burden; upon most of our cherry trees the fruit was good, though we lost all our nectarines except two. For this latter fruit, these insects have a great partiality, and I found them on trees long after they had disappeared from all others. I never found more than two and seldom more than one egg in any other fruit than a nectarine; in a single one of those I have sometimes observed a dozen, and have seen three curculios laying eggs at one time in a single specimen.

By making each day last spring a careful examination, I ascertained that the curculios commenced their depredations upon plums first, and on the first day of their appearance, (May 20,) I killed twenty. For the space of nearly a month from that time, the trees were thoroughly shaken almost every day, and occasionally until the fifteenth of June, tho' in the latter part of the time very few were caught. During the first month, the number killed from fifty trees sometimes amounted to 600 each day; in July hardly a dozen. The manner of taking them was effectual, though somewhat laborious: a large white cloth was spread under the

tree, reaching as far as the foliage extended: the body and the larger branches were then repeatedly jarred with a pole about ten feet long, the end of which was covered with thick cloth, and an old india rubber shoe to prevent injury to the bark, and the insects as they fell were killed with the fingers. Shaking the tree or the branches violently with the hand, stopped the operations of the curculio for a short time, but they would not quit their hold; to make them do that, required the sudden jar, such as was given by the pole.

Some trees I syringed with strong tobacco water and whale-oil soapsuds several times, wetting every part, even of the leaves, with these compounds, so that the odor thereof was perceptible at a distance of twenty feet, without producing any effect, for the curculio seemed to be as numerous on these trees after washing as before. I have seen one lay an egg in a plum, the skin of which was so coated with these washes as to be exceedingly nauseous to the taste. I am satisfied that a war of extermination, not of prevention, will be our only hope. These sickening smells incommode only ourselves. I thought that the tobacco water or soapsuds might perhaps kill the eggs already laid, or prevent the young worm from eating into the fruit; but I could see no such result, and found that the worm would live after having been immersed in tobacco water so strong as to be as dark as port wine.

About two days after the egg is laid, the skin above it becomes brown, and the egg may be easily extracted with the finger nail or the point of a knife. I operated in that manner upon the plum on one branch of a tree, and saved all of them without apparent injury to any.

Fruit ordinarily falls about a fortnight after it is stung, and the grub soon afterwards makes his way into the ground, but if the egg is laid after the stone has become hard, the fruit does not often drop, and the tenant retains possession, causing the decay of the side where he is at work. In all cases the fallen fruit should be destroyed as soon as possible. When Morello cherries are stung after the stone has hardened, the skin and pulp on that side dry and crush the worm. I examined a great number, and found that not one had escaped. This is not the case with other cherries, as abundant experience while eating them has proved. Generally these insects appear to know when the stones become hard, and the fruit unfit receptacles for their eggs; they then desert such trees and seek others, attacking the peach last. The young peach having a peculiarly woolly covering, the curculio often lays her eggs in the stem, and the grub finds its way through that into the fruit.

The beetle when it falls upon the sheet beneath the tree rarely attempts to fly, preferring to use the legs rather than the wings, yet it navigates in search of fruit, and often makes its appearance of fruit trees distant from others, and stings all the fruit the first year any is produced. An observing horticulturist, near this city, who is indefatigable in his war upon all insects, and whose fruit-yard is nearly a mile distant from any other, informs me that he finds the curculio more numerous in his grounds, and especially upon the westerly trees, immediately after a west wind. Across the river opposite to him, and extending west for many miles, is a road well settled, abounding with fruit, and especially with plum trees. From that source must come these insects, assisted in the flight by the prevailing winds. That they do not fly very high above the ground is proved by building tight board fences ten or fifteen feet high around single trees or fruit yards; those trees within will not be visited, while those without will sometimes be entirely stripped. I have heard this summer of several persons who had tried this plan with entire success; yet there is no doubt that the cheapest and most effectual way is to shake them off,—a troublesome operation, but one that pays well in the end.—*Horticulturist.*

LIVE FENCES.

The introduction of live fences will soon become an interesting feature in western agriculture. While stone is too scarce to be thought of, and wood none too abundant, it is obvious that the inclosing of land, and especially large districts, must eventually be done by hedges of locust, Osage orange, buckthorn, hornbeam, or some other plants adapted to our climate. The beautiful appearance given to a landscape by evergreen hedges, and their superiority to the old-fashioned worm or board fences, in point of economy, in the long run, must also bring them into favor. The seed costs but a trifle, and all the other expense is comprised in *labor* and within the reach of the farmer, without paying out his cash for boards, nails, posts, and the cost of hauling the materials for a boarded or rail fence. For our western prairies, they seem to be peculiarly well adapted. Along the lines of canals also, where permanent fences are obliged to be maintained, there would be great advantage in planting hedges at once. The idea that when fairly established, they will never need removal, would inspire a degree of security which cannot be felt by those persons who are in the habit of patching up decayed fences, and calculating the value of a rail in resisting the depredations of stock.

Of the various plants that have been tried for live fences, the Osage Orange (the *Maclura aurantacia*) stands preeminent. It is found growing in its native state, on the borders of the Red River in Texas, and flourishes in perfection in the Western States, and as far north as Massachusetts at least. It possesses all the requisites for a hedge, being covered with thorns, and growing bushy near the ground; it also has a fine, rich, glossy foliage, and bears clipping well, and its thorns soon become so hard and thick, as to render a fence almost impervious to a rabbit, and cattle will not browse on them. In its native *habitat*, it attains to the size of a tree of the second or third class; but in Ohio, and farther north, its altitude is very moderate, seldom rising to the height of fifteen feet. Its great merit consists in the spreading manner of its growth, the denseness of its branches, and the armature with which they are furnished. Planted in hedgerows, it would never become unmanageable on account of its size—at the same time, its growth is sufficiently vigorous to make a fence in three, four, or at most five years from the seed. It may be asserted with safety, that on land of tolerable fertility, the labor and expense of perfecting a system of hedges, would not be greater than to keep ordinary enclosures in good order, for the time required to construct them. When completed, this heavy item in every farmer's account would thenceforth be expunged.

The Osage orange is readily raised from the seed. Unlike the various kinds of thorn, the seeds vegetate with certainty in two or three weeks after planting. Under tolerable care, the seedlings will grow two feet or more in height the first season; after which, they are fit to be removed from the nursery rows to the place designed for the hedge.

The best way to start a hedge of this plant, is to procure some of the seeds, of which about 7000 are comprised in a quart. Scald them in water near the boiling point, and plant them in nursery beds, in good soil, and keep down the weeds the first year. In transplanting, the plants should be set about twelve inches apart. These facts will enable any person to form a correct judgment of the number necessary to plant in any given length of hedge. The seed should be sown early in the spring, and if not preferred to sow as above in a nursery bed, to be afterwards transplanted, it may be sown where the fence is wanted, by preparing the ground, and using a garden line to get the fence straight, covering the seed lightly with fine earth. When the plants are up, they must be kept clean and well hoed; and in the fall, they should be headed down to within two or three inches of the ground.—*Cin. Gazette.*

☞ Mr. Willard, of this city, has the Osage Orange seed for sale.—*Ed. Journal.*

From the Horticulturist.

HOW TO RAISE THE BEST GOOSEBERRIES.

Sir:—I hear almost every body complain of the difficulty of raising fine gooseberries. The bushes, to be sure, grow easily enough. It is not difficult to get from the nurseries the prime English sorts—sorts with large and high-flavored fruit, really worth growing. But there seems to be something wrong in our warm and dry climate, that is utter ruin to the fruit. A sort of *scurf* or *mildew* settles on the berries soon as they are about a quarter grown, and destroys the whole crop. Once attacked by this pest, the berries are past cure, and quite worthless.

Now I have been very lucky in my gooseberry growing

and it has struck me that a few words about my way of doing the thing might help some unfortunate being, fond of gooseberries, but who does not know how to raise them.

I plant my gooseberry trees in the long border on the north side of a paling fence. Before planting them, I trench the border two feet deep, as I know that the roots of the gooseberry love plenty of moisture all summer, which they can never get in the soil, unless it is made deeper than common, by trenching it well. For manure, I give it a heavy dressing of common stable manure, when the trenching is going forward.

I then put out my gooseberry plants early in the spring, or early in the fall, as may be most convenient to me. I have not found that the season makes much difference. I plant them about four feet a part every way, and always keep them trimmed to clean single stems like small trees.

There are hundreds of sorts of prize gooseberries raised in Lancashire, but they are not all suited to this climate. I have tried a great many and have settled down upon *two* which, taking all in all, I think not surpassed by any others for this climate. These are the Crown Bob, a grand old red gooseberry of excellent size, always bears good crops and possesses a high flavor; and the *White Smith*, quite as good among the whites, as Crown Bob is among the reds. There are no doubt many others, very good ones, in the catalogues, but there are none better, and as there is not much variety in gooseberry flavor, I am quite content with these two prime sorts, that will satisfy any body however fastidious.

I prune my gooseberries among the very first bits of garden work done in the opening of spring. I usually cut out about one-third of the wood made the previous summer. As soon after that as the ground is in working order, I give the border where they grow the dressing for the season, after this fashion. I first provide myself with a couple of barrels of *soot*, as this is my favorite manure for this shrub. It is easily enough collected during the winter, with the help of a chimney-sweeper in my neighborhood, and I suppose every housekeeper might have enough for the gooseberries in his own garden, if he is not so large a gooseberry-grower as myself, out of the sweepings of they chimneys and stove-pipes about his own premises.

The gooseberry border is first nicely dug over. I then scatter a light dressing of the soot over the whole surface, and under the bushes, at the rate of a quart to each gooseberry bush. This gives them plenty of stimulus for the season's growth, for soot is a very powerful manure, and no plant likes richer soil than the gooseberry.

Next comes my remedy against the mildew. This is neither more nor less than *salt hay*, (i. e. hay from the salt marshes.)* As soon as I have made the top dressing of soot, I cover *the whole surface* of my gooseberry border with salt hay to the depth of three inches. This keeps the soil always moist and cool, not merely by covering the ground with the hay so that it shall not be made dry by the sun, but because the salt in the hay always attracts moisture from the air, and gives it out to the bushes. This prevents the sudden changes from hot to dry, which always almost immediately cause mildew. I have tried it now six years and have never had a blighted berry from the first, though in the same soil, and with these very sorts, I had bother enough with this troublesome thing before.

My crops are regular and large. I send you a rough sketch of about the usual size of my two favorite sorts, grown after my fashion. They may not equal the prize sorts of the Lancashire weavers, who put a saucer of water under their show-berries to make great dropsical monsters of them, but I will answer for it, they are higher flavored.

Yours with much respect,

A Jerseyman.

Madder—(*Rubium tinctorum.*)—The season for planting madder is May or June. Miller, whom some regard as excellent authority, says it "should be planted with a dibble (being propagated by offsets from the old roots) in rows from two to three feet asunder." This climate is said to be favorable to the root, and several successful experiments in its cultivation have already been made. The soil best adapted to the madder is a "deep, rich, sand loam, moist but not wet." It requires three summers to come to perfection. The average akerable produce is from ten to twenty hundred pounds, and the average market price, twenty dollars the hundred weight.—*Maine Farmer.* W.

WHEAT---BRINE AND LIME---EARLY CUTTING.

BY H. B. HAWLEY.

Messrs. Editors:—Last year I promised you some of my experience in farming. I do not expect to put forth any thing new, but would wish to sustain all good practice, in agriculture from repeated experiments already advised in the Prairie Farmer. I have adopted a course for the culture of wheat which I shall pursue until something better offers. Economy is necessary for all; and many are deterred from brining and liming wheat for seed---some by the want of means to soak fifteen or twenty bushels for four to twelve hours, as many recommend, others by fear of change of weather and loss of seed if soaked. I will give my mode, as I am satisfied from repeated experiments that it is all that is necessary or beneficial. One tub and barrel, if no more are handy, are all that is necessary. I prepare each day the quantity I wish to sow. I put the barrel half full of strong brine, then pour in one bushel or more of wheat, slowly, and take off what floats, often, so that the heavy wheat will not carry it down; I then stir up well to give all a chance to rise that will, and take off all that floats; then pour the brine into the tub, drain the wheat well, and pour it on the floor; pour the brine into the barrel again, and put in another batch, adding brine as often as necessary, and let it stand until I have limed the first batch. I put on a shovel full of slacked lime and shovel it up well, or sufficient to keep it from sticking together, and put a bushel into each bag, that there may be no mistake in sowing the proper quantity per aker, as the wheat will be increased in bulk one-fourth or more. I sow one bushel and a half per aker, and endeavor to have all well got in before the 10th of September.

For the satisfaction of those who may think the practice not worth the trouble, I will say something of my last season's crop. I sowed thirty akers on new breaking, the seed for which was prepared in the way I have stated, except two casts in width across the field, which was sown with seed not so prepared, for the sake of experiment; the consequence was, it was very smutty; any stranger could have found and followed the strip by the smut and chess. That which was brined and limed had a little chess but no smut in it. My other wheat, sown on stubble, without being brined or limed, was smutty and had much chess; so was all the wheat in this vicinity. Mine that was brined and limed yielded twenty per cent. more than that which was not, and brought ten cents more per bushel than the other; it weighed sixty-four pounds per bushel, although the four pounds was gained in part by cutting early. "There is a right and a wrong time to do all things," said Mr. Hardup. Yes, and the right time to harvest wheat is, when it will yield the most. I will give you my views of when the right time arrives. I do not look at the first nor second joint; they may vary in appearance by the effect of the season or soil: as soon as the bulk of the crop has got its brown color, and the berry is dowey and soft, I consider the right time. I then commence cutting, and let it lie in the swath one day if the weather is good; and do not wait for the small wheat to grow larger, for it never will—and thus lose the best of my crop by shelling, to say nothing of the shrinkage in weight. I let three akers of my best wheat stand until dead ripe, for seed; it weighed only sixty-one pounds; the wheat along side, cut one week earlier, weighed sixty-four pounds.

Now sirs I am convinced, if no one else is, that by brining and liming, and cutting in what I think the right time, I have gained enough to pay for the salt and lime, and the Prairie Farmer for several years in the bargain.

Aztalan, Wis., March, 1847. *Prairie Farmer.*

To destroy Insects on Trees, Shrubs, &c.—Tie up some flour of sulphur in a piece of gauze, and dust the plants a little

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*[We suppose in districts of country where salt hay is not produced, some substitute might be found in any coarse common hay soaked in brine.—Ed. Far.]

WISCONSIN FOR FRUIT.

BY E. B. QUINER.

Messrs. Editors:—Almost the first enquiry put to me after my arrival in this Territory was, what my opinion was as to the success of the cultivation of fruit in this country. At that time fruit trees were very scarce, and as I had bro't with me from the nurseries of Hampton and Ratliff, and others in Wayne county, Indiana, a choice variety of trees, it elicited considerable argument among the wise ones, whether they would ultimately succeed in this (supposed) Boreal country of ours. Drawing my conclusions from the fact that the plum, apple, and other wild fruits flourished in this portion of the country, I gave my opinion at that time, that there would be no difficulty in rearing fruit trees here: and subsequent events have proved the correctness of that opinion. I find no difficulty in the matter except in the culture of the peach, which is apt to be winter-killed here in some situations; but experience has taught me that even the delicate peach may be depended on as a sure fruit, by proper management; and I have seen trees breaking down with their loads of fruit within a few miles of this place. As yet, however, the farmers have hardly begun to think of setting trees. And in some cases where it has been done, that care has not been taken of them which would insure any immediate profit to the owner; for they are often *stuck* into the ground, and a stake or two fixed for them *to rub against*, and after having the benefit of one summer's growth, per chance the hogs, sheep, and even the horses are turned into the lot—and the way they trim them up is a caution to all the old nurserymen of the country. I was passing last fall, by a field in one corner of which the owner had last spring set something like a hundred fine thrifty apple trees, brought from the eastern nurseries, and was somewhat surprised to see therein a couple of mares and their colts. And from appearances I should judge they had been trying their hands at the pruning-knife; for I don't know that I ever saw trees so effectually pruned, in my life—particularly a few *very fine* trees that I had remarked as being of extraordinary beauty, and for which I would not have taken five dollars a-piece if they were growing in my own ground.

Prairieville, Waukesha co., Wis.—*Prairie Farmer.*

GRAFTING ON THE CRAB APPLE.

BY J. M. COOK.

Messrs. Editors:—I have tried various methods to hasten an orchard as fast as I could, so as to reap the benefit of my labor as soon as possible. For a time I waited for nurseries to be grown, to obtain trees from; but becoming impatient, I obtained some choice grafting slips, and commenced grafting in crab-apple stocks. I was told I would lose my labor and trees too, as they would not live more than one or two years in crab apple; but still I grafted away, on a plan of my own—and here I will describe it. In the first place I remove the earth from around the root of the crab-apple bush, and then saw it off square and dress it smooth with a knife. After setting my graft I replace the earth, and leave but one bud above the ground. As soon as the graft is grown about six or eight inches, I begin to raise the earth around it, and continue to do so as often as once a fortnight until about the middle of August. By this time I have a hill or mound about eight inches high. In this way I am about certain to get a good root from the graft, owing to the earth being raised around it.

Four years ago I set twenty-three grafts, and the next spring I moved them into my orchard: out of the twenty-three, twenty had a fine root, independent of the crab-apple.

Last season some of my four-year-old trees were full of blossoms, but were killed with the frost. The trees are fine and thrifty.

If the crab-apple should sprout the first season, I remove the earth and rub them off. There is no danger of their sprouting after they are removed, for the small portion of root that you remove with them is set so deep in the ground as to entirely prevent it.

The advantage gained by grafting in crab-apple is this. By grafting in a stock from an inch to an inch and a half in diameter, you have an abundant flow of sap which causes your trees to grow with an astonishing rapidity. Some of my grafts grew the first season to the height of seven and a half feet. As the growth is so rapid, a stake should be placed by them and the trees tied fast with a woolen string. The crab-apple should not be removed from the place where nature placed it until the next spring after grafting.

Prairie Farmer.

THE HEAVES IN HORSES.

BY HON. A. BRONSON.

Messrs. Editors:—I have one more subject on which to write; and though it may not be new to *all* your readers, it is entirely so to me. In the summer of 1845 my man, by being a little too careful of his pains, fed my horses when he came from the plow, with dry oats, without first giving them water. The consequence was that one of them, a valuable mare, took the heaves, or something so much like it that I could not tell the difference. It required as much of an effort, fore and aft, to get breath, and she weezed as bad as any horse I ever saw with the heaves in the eastern or middle States.

I called upon a neighbor who dealt largely in horses and often doctored them, to know whet ailed her, and what I should do for her, stating that she had the heaves. "Heaves, man," said he, "did you ever know a horse to have the heaves in this country? True," said he, "she acts like it, but never knowing a horse to have them in this country, I conclude something else must be the matter." But she had the heaves, and I was obliged to relieve her from work; she got poor, and I expected she would soon die. But in the summer of 1846 my pasture run short, my hay was gone, and I was obliged to keep my horses on fresh-cut grass in the stable; and having plowed up the ground next to my barn for fallow, a kind of twitch-grass grew on it in abundance. I do not know your technical name for it, nor whether it has any; but I often see it in corn and other fields, in tufts as large as a corn basket. A few broad leaves grow out near the root; but the top is fine as hair, with a thousand branches. On this kind of grass I had my horses fed for some weeks, giving them their usual quantity of grain, and to my surprise the heaves entirely left my mare. She soon fleshed up, and took her place in the gears, and no symptoms of the disease have returned from eating dry hay thro' the winter. Of that same kind of grass, however, I made considerable hay, which was the first hay fed in the fall and beginning of winter But the heaves had left her before the green grass was done with.

I am satisfied that the green grass above described effected the cure, whatever the complaint was; and if any of your readers have a horse in a like situation, let them try it; and if any one feels disposed to apply the laws of chemistry to test the medical properties of the grass, he might do a great service to man, as well as beast, by finding a remedy for asthmas, or similar diseases.

Prairie du Chien, Wis., March, 1847.—*Prairie Farmer.*

BEES.—Bees should not be kept on the south side of a wall or building, but on the north side. If kept on a southern exposure, they will be tempted to leave their hives while the general atmosphere is yet cold, and perish before they can return.—*Prairie Farmer.*

To raise Locust Trees.—Plant the seed an inch deep, after having, early in the spring, poured boiling water over them to soak for twenty-four hours.

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